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ABSTRACT

Data for this report on the National Science Foundation's research and development (R&D) expenditures were collected from a sample of 460 institutions of higher education in the United States and outlying areas. Institutions were selected from the universe of 595 schools that grant a graduate science or engineering degree or perform activities for which at least $50,000 has been funded from separately budgeted R&D expenditures. The sample population includes all doctorate-granting institutions, all historically black colleges and universities with R&D expenditures, and a random sample of all other institutions. In addition, the survey includes 18 federally funded research and development centers. The bulk of the report consists of detailed statistical tables, and the survey instruments are included. (PR)

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Academic Science and Engineering: R&D Expenditures, Fiscal Year 1990

Science and Engineering Activities Program
Division of Science Resources Studies
National Science Foundation

Detailed Statistical Tables

NSF 92-321

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Academic Science and Engineering: R&D Expenditures, Fiscal Year 1990

July 1992

Project Officer: M. Marge Machen

Science and Engineering Activities Program
Division of Science Resources Studies
National Science Foundation

Detailed Statistical Tables

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Acknowledgments

The development of *Academic Science and Engineering: R&D Expenditures, Fiscal Year 1990* was managed by M. Marge Machen, Project Officer, Science and Engineering Activities Program of the National Science Foundation's Division of Science Resources Studies (SRS). The project was developed under the supervision of Eileen L. Collins, Program Director, with guidance and review provided by the SRS Director, Kenneth M. Brown.

The survey was conducted by Quantum Research Corporation (QRC) of Bethesda, Maryland, under NSF contract number SRS-91-00672. The SRS gratefully acknowledges the QRC staff members who worked on this project: Barbara DePaul, M. A. Holubek, Richard L. Klein, George Nozicka, Carlos Reyes and Stève Toléqué.

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General Notes

The data presented in this report were compiled from the National Science Foundation's (NSF's) fiscal year (FY) 1990 Survey of Scientific and Engineering Expenditures at Universities and Colleges. They refer to science and engineering (S&E) expenditures for separately budgeted research and development (R&D). Terms used in institutional accounting procedures are incorporated throughout the tables.

The term "separately budgeted research and development (R&D) expenditures" includes all funds expended for activities specifically organized to produce research outcomes and commissioned by an agency either external to the institution or separately budgeted by an organizational unit within the institution. "Expenditures" are funds actually spent by an institution during its fiscal year. "Separately budgeted R&D equipment purchased from current funds" includes all research equipment purchased under sponsored research project awards.

"Federally funded research and development centers" (FFRDCs) are R&D-performing organizations that range from the traditional contractor-owned/contractor-operated or Government-owned/contractor-operated organizational structures to various degrees of contractor/Government control and ownership. FFRDCs are formed to achieve particular Federal R&D objectives that cannot be met as effectively by existing organizations.

The terms "imputation" and "imputed data" refer to the computerized process by which NSF develops estimates of data when institutions do not furnish the information upon request. Using this process, estimates are developed that are based primarily on key data items reported in prior years' surveys when available. When not available, estimates are based on figures derived from data of respondent institutions that have similar characteristics, including highest degree granted and type of institutional control (public or private). In this publication, the letter "I" is used to identify imputed data and the letter "E" is used when respondent institutions indicated that their data were estimated, or when data required slight mathematical adjustments.

Data presented in trend tables are assembled from the most recently completed survey cycle. Since prior years' data are reviewed for consistency with current year responses and, when necessary, revised in consultation with institutional respondents, references to prior years' data should be restricted to this document.

Requests for additional information concerning the survey findings for the current or prior surveys should by directed to Ms. Marge Machen at the following address:

Science and Engineering Activities Program
Room L-609
Division of Science Resources Studies
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Washington, DC 20550

(202) 634-4673

Section A. Technical Notes

Scope of the Survey

Data for the National Science Foundation's (NSF's) fiscal year (FY) 1990 report on research and development (R&D) expenditures were collected from a sample of 460 institutions of higher education in the United States and outlying areas. Those institutions were selected from the universe of 595 schools that grant a graduate science or engineering (S&E) degree and/or perform activities for which at least $50,000 has been funded from separately budgeted R&D expenditures. The sample population includes all doctorate-granting institutions, all historically black colleges and universities (HBCUs) with R&D expenditures, and a random sample of all other institutions.

In addition, the survey includes 18 federally funded research and development centers (FFRDCs). To qualify, an FFRDC must be engaged in basic or applied research, development, or management of R&D activities, and the results of these activities must be directly monitored by the Federal Government--usually a single agency--in a relationship expected to be maintained on a long-term basis. The center must be operated, managed, and administered by either a university or consortium of universities as an autonomous organization or as an identifiable separate operating unit of its parent institution. Finally, 70 percent or more of the center's financial support must be received from the Federal Government.

Although the same survey form (NSF Form 411) is used to collect data from both academic institutions and FFRDCs, the resulting data are presented separately in this report. The survey population was reviewed prior to mailing the questionnaires to ensure that each institutional classification is accurate. Characteristics of the schools were reviewed before and during the course of the survey to determine if changes have occurred (i.e., in highest degree granted or in terms of school openings, closings, or mergers). Names of institutions newly added to the *HEP 91 Higher Education Directory* were reviewed to determine their eligibility for inclusion in this survey.[1]

Survey Instrument

The questionnaire used in the FY 1990 survey incorporates two significant changes from that of prior years. Item 4 on Capital Expenditures has been discontinued from the survey. A new subfield has been added under "Engineering" in Items 2 and 3: Metallurgical and Materials Engineering. In addition, the "Crosswalk," which is standard in the survey package, now appears on the last two pages as part of the survey instrument, rather than as a separate item. The crosswalk relates the S&E fields designated in the NSF survey to those of the National Center for Education Statistics (NCES) Classification of Instructional Programs. The crosswalk is provided to aid respondents whose institutional recordkeeping systems are organized according to these NCES classifications.

Most major R&D performers have incorporated into their recordkeeping systems the data that are essential to complete this survey, thereby ensuring a consistent format from one year to the next.

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[1] Higher Education Publications, Inc., Falls Church, VA, 1991.

Such consistency yields the most useful statistics for time series. As a rule, information to complete this questionnaire is found within the institutions' year-end accounting records.

The survey questionnaire consists of three main items:

Item 1 is a request that institutions report their total current expenditures for separately budgeted S&E R&D by source of funds and indicate the percentage of the total and percentage of the federally financed portion that are considered basic research. Care should be observed when interpreting data on source of funds; for example, industry R&D support is limited to grants and contracts for R&D activities from profit-making organizations, and the total reported excludes research funded through unrestricted accounts and from corporate foundations, endowments, and fellowships to students. An increasing number of institutions have linkages with industry and foundations via subcontracts, which complicates the identification of funding source. In addition, institutional policy may determine whether unrestricted state support is reported as state or as institutional funding.

Item 2 is a request for total and federally financed current fund expenditures for separately budgeted R&D activities by detailed S&E fields. Major fields remain unchanged from the FY 1989 questionnaire. When interpreting these data at the detailed discipline level, users should keep in mind that there is considerable interdisciplinary activity and/or overlap among subdisciplines.

Item 3 is a request that institutions specify the portion of total expenditures and the portion of federally financed expenditures reported in Items 1 and 2 that were used for the purchase of research equipment out of current funds. This includes all research equipment purchased under sponsored research project awards and disbursed in the same detailed disciplines as in Item 2. These data are of special interest to Federal and institutional policymakers in determining current funding levels for scientific research instrumentation.

Response Rate

The FY 1990 survey questionnaires were mailed in October 1990. Every effort was made to maintain close contact with respondents in order to preserve both consistency and continuity in the resultant data. Questionnaires were carefully examined upon receipt for completeness. Computerized facsimiles of the survey data were then prepared for each institution, comparing the current and 2 previous years' data and noting any substantive disparities. These facsimiles were mailed to the respondents so that they could provide revisions before final processing and tabulation of the data took place.

Respondents were asked to explain significant discrepancies between current and prior-year reporting patterns previously verified as correct. They were encouraged to correct prior years' data if anomalies were identified. When updated or amended figures covering past years were submitted, trend data were correspondingly changed by NSF. Similarly, if a respondent institution underwent an organizational change, such as a merger, NSF incorporated the effects of such changes into prior years' data.

By the survey closing date in late June, forms had been received from 452 universities and colleges out of a sample population of 460, resulting in a 98.3-percent response rate. Responses were received from 98.2 percent of all doctorate-granting institutions, where more than 98 percent of the R&D expenditures in S&E fields was disbursed. Also, forms were received from all 18 FFRDCs. Tables A-1a and A-1b display a detailed breakdown of the response rates by degree granted and by sampling stratum (sampling strata are defined under Sampling, Weighting, and Standard Errors of the Estimates).

National Total and Imputation

To provide a national estimate for universities and colleges of R&D expenditures for FY 1990 it was necessary to implement three statistical procedures. First, data were estimated for the approximately 2 percent of the sample population that had not responded by the closing date of the survey by "imputation," a technique used consistently since FY 1976. Second, data were either imputed or estimated for universities and colleges that submitted only partial responses. The combined imputed and/or estimated amounts totaled $331 million for R&D expenditures at universities and colleges (see Selected Institution Data Anomalies). Third, the sample total was weighted to compensate for those universities and colleges that were in the survey universe but not in the survey sample (this procedure is described under Sampling, Weighting, and Standard Errors of the Estimates). This led to an inflation of $127 million in the national total of R&D expenditures at universities and colleges for FY 1990 to equal $16,325 million, as shown in table A-2.

Tables A-3a and A-3b present a breakdown of both the imputed and/or estimated amounts, and the amount of the weighted inflator by broad S&E fields. The dollar amount imputed and/or estimated is displayed along with the percentage it represents of the national estimate for universities and colleges in that particular field. Also given is the amount of the weighted inflator for that field. The amount imputed or estimated and the amount of the weighted inflator are similarly broken down by source of funds in table A-4.

A significant number of surveyed institutions have been responding only intermittently in past years, providing data one year, not responding for one or more subsequent years, and then providing data again. For the years in which no response was received, data have been imputed as previously described. Although the imputation algorithm accurately reflects national trends, it cannot account for reporting anomalies at individual institutions. For this reason, a separate backcasting of previous years' data was performed, following current-year imputation.

For each institution, formerly imputed key variables for Items 1 to 3 were compared with subsequent submissions to determine whether the imputed data accurately represent the growth/decline patterns shown by reported data. Re-estimation was applied when the imputed data were not consistent with reported data. If data were reported for fiscal years 1986 and 1990 but not for the intervening years, for example, the difference between the reported figures for each item total was calculated and evenly distributed across the intervening (1987-89) years. The new figures were spread across disciplines (Items 2 and 3) or sources of support (Item 1) on the basis of the most recent reporting pattern. These procedures resulted in much more consistent reporting trends for individual institutions but had little effect upon aggregate figures reflecting national totals.

Selected Data Anomalies

Aggregate academic expenditure trend data are generally consistent from year to year, although data for individual institutions may vary considerably. Data anomalies may reflect true increases or decreases in expenditures or may be the result of changes in reporting methodology. One particularly large difference between FY 1989 and FY 1990 data is reflected in the imputed amounts and rates in tables A-3a and 3b. These large estimates are representative of Stanford University, whose data were received too late for inclusion in the FY 1990 database. Their actual FY 1990 data will be displayed in the FY 1991 tables.

Sampling, Weighting, and Standard Errors of the Estimates

NSF converted from a full population survey of 595 institutions to a sample survey of 460 institutions for the FY 1989 cycle. The sample remained unchanged for the FY 1990 cycle. During the FY 1990 survey cycle, the survey design separated universities and colleges from FFRDCs. In turn, universities and colleges were divided into the following four strata (three certainty strata and one probability stratum):

(1) **A certainty stratum of doctorate-granting institutions.** This stratum contains 306 universities and colleges that grant doctorate degrees in S&E fields. Excluded from this stratum are all doctorate-granting HBCUs and university system campuses.

(2) **A certainty stratum of HBCUs.** This stratum includes all 70 HBCUs (including those that are doctorate-granting institutions or university system campuses).

(3) **A certainty stratum of university system campuses.** This stratum includes 36 "university-system campuses"; each sample entry is the aggregation of all campuses that make up a university system. Note that no HBCUs are included in this stratum even if they are university-system campuses.

(4) **A probability stratum of institutions that grant degrees at the master's level or below.** This stratum includes 48 master's or bachelor's degree-granting institutions and institutions that offer no S&E degrees at any degree level, out of a survey stratum universe of 183. Note that none of the universities or colleges included in this stratum are either HBCUs or university-system campuses. This stratum had a sampling ratio of 0.26.

The data in this report are weighted to represent national-level R&D expenditures for universities and colleges (as mentioned previously under "National Total and Imputation"). The sample data, after imputation and estimation, were inflated to produce universe estimates by weighting the individual questionnaire data values by the inverse of the sampling ratio. Thus, in aggregating data for institutions from the probability stratum for tabulation purposes, each datum value was weighted by the inverse of the sampling ratio.

Estimates derived for institutions in the probability stratum were based on a sample, and the relative standard error (coefficient of variation) of an estimate was then obtained by dividing the standard error by the estimate itself, expressed as a percentage of the estimate.

The standard errors and coefficients of variation for each major S&E field are shown in table A-5. For example, for total academic R&D expenditures of $16 billion, the standard error of the estimate is $42 million at the 95-percent confidence level, with a coefficient of variation of ±3 percent. Similarly, for the estimate of $10 billion in federally financed expenditures, the 95-percent confidence limits are plus or minus $30 million, with a coefficient of variation of ±3 percent.

Data Availability and Distribution

Data published in this report are also available in machine-readable form on magnetic tapes. A multiyear data tape is available that contains data for FY 1972 through FY 1990; single-year tapes may also be purchased for any of these years. Information on tape formats and years available, with prices and instructions for ordering, are contained in the current *Supplemental User Guide to Data Tapes*, which is updated each year. A general *Guide to the National Science Foundation's Surveys of Academic Science and Engineering* is also available. Both user guides may be obtained by contacting Ms. Marge Machen at the following address and telephone number:

Science and Engineering Activities Program
Room L-609
Division of Science Resources Studies
National Science Foundation
Washington, DC 20550

(202) 634-4673

Selected data items for individual doctorate-granting, master's-granting, and historically black institutions are available on computer-generated Institutional Profiles, which consist of data not only from this survey but also from NSF's other two academic S&E surveys: Federal Support to Universities and Colleges, and Graduate Enrollment and Support. Since the R&D Expenditures Survey is a sample data collection effort, not all master's-granting institutions' data appear on every profile. Institutional Profiles for any institution or limited group of institutions may be ordered by contacting Mr. Richard Bennof at the following address and telephone number:

Science and Engineering Activities Program
Room L-609
Division of Science Resources Studies
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Washington, DC 20550

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The CASPAR (Computer-Aided Science Policy Analysis and Research) database system is an easy-to-use tool for retrieval and analysis of statistical data on academic S&E resources. CASPAR provides the analyst with an extensive and growing data library with multiyear statistics on the state of higher education in general and on S&E resources specifically. This data library is based on a set of standardized institutional and field of science definitions across the multiple sources used to develop

the database. The CASPAR program includes built-in help capabilities to facilitate the use and interpretation of the data.

CASPAR data are drawn from a number of sources. All are available for individual institutions, by State, and at the national level. Longitudinal data from surveys of universities and colleges conducted by the NSF Division of Science Resources Studies include the R&D Expenditures Survey, Federal Support Survey, and the Graduate Enrollment and Support Survey. Data from surveys of universities and colleges conducted by the NCES include Earned Degrees, Opening Fall Enrollment, Faculty Salaries, Tenure, and Fringe Benefits, and Financial Statistics. Data from other sources include the National Research Council Doctorate Program Ratings.

CASPAR is distributed on CD-ROM compact disk. For additional information on CASPAR, write or FAX to the following address:

Quantum Research Corporation
ATTN: CASPAR
7315 Wisconsin Ave, Suite 631W
Bethesda, MD 20814

FAX Number: (301) 657-3862

Table A-1a. Response rates for the Academic Science and Engineering R&D Expenditures Survey at all institutions, by type of institution: FY 1990

Highest degree granted	Number in survey universe	Number in sample pop.	Number of complete responses	Number of partial responses	Total number of responses	Response rate
Grand total	613	478	297	173	470	98.3%
Universities and colleges total	595	460	281	171	452	98.3
Doctorate	328	328	198	124	322	98.2
Master's	177	76	47	29	76	100.0
Bachelor's and no S&E degree	90	56	36	18	54	96.4
FFRDCs total	18	18	16	2	18	100.0

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table A-1b. Response rates for the Academic Science and Engineering R&D Expenditures Survey at universities and colleges, by sampling strata and highest degree granted: FY 1990

Sampling Stratum	Number in survey universe	Number in sample pop.	Number of complete responses	Number of partial responses	Total number of responses	Response rate
Grand total	595	460	281	171	452	98.3%
#1 Doctorate stratum (1)	306	306	184	117	301	98.4
#2 HBCU stratum	70	70	36	31	67	95.7
Doctorate	7	7	1	5	6	85.7
Master's	20	20	7	13	20	100.0
Bachelor's and no S&E degree	43	43	28	13	41	95.3
#3 University systems stratum	36	36	31	5	36	100.0
Doctorate	15	15	13	2	15	100.0
Master's	20	20	17	3	20	100.0
Bachelor's and no S&E degree	1	1	1	0	1	100.0
#4 Master's or below stratum (2)	183	48	30	18	48	100.0
Master's	137	36	23	13	36	100.0
Bachelor's and no S&E degree	46	12	7	5	12	100.0

(1) Doctorate stratum does not include doctorate-granting institutions that are recorded in either the HBCU or the university system stratum.

(2) Master's or below stratum does not include master's-granting institutions or bachelor's and no S&E degree granting instiutions that are recorded in either the HBCU or the university systems stratum.

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table A-2. Imputed and/or estimated amount for the Academic Science and Engineering R&D Expenditures Survey at universities and colleges, by type of institution: FY 1990

[Dollars in millions]

Highest degree granted	National estimate of separately bugeted R&D expenditures	Amount inflated due to weighting	Amount imputed and/or estimated	Imputed and/or estimated as percent of total
Total	16,325	127	331	2.0%
Doctorate-granting institutions	16,057	0	325	2.0
Nondoctorate-granting institutions	268	127	6	2.2

NOTES: Because of rounding, components may not add to totals.
Percentages are calculated from unrounded figures.

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table A-3a. Imputed and/or estimated amount for the Academic Science and Engineering R&D Expenditures Survey at universities and colleges, by science and engineering field: FY 1990

[Dollars in millions]

Science and engineering field	National estimate of separately bugeted R&D expenditures	Amount inflated due to weighting	Amount imputed and/or estimated	Imputed and/or estimated as percent of total
Total	16,325	127	331	2.0%
Engineering	2,682	25	153	5.7
Physical sciences	1,781	20	87	4.9
Environmental sciences	1,047	20	18	1.7
Mathematical sciences	221	3	6	2.8
Computer sciences	503	5	26	5.1
Life sciences	8,763	33	341	3.9
Psychology	260	10	10	3.9
Social sciences	702	9	15	2.1
Other sciences	365	2	2	0.6

NOTES: Because of rounding, components may not add to totals.
Percentages are calculated from unrounded figures.

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table A-3b. Imputed and/or estimated amount of federally financed Academic Science and Engineering R&D Expenditures at universities and colleges, by science and engineering field: FY 1990

[Dollars in millions]

Science and engineering field	National estimate of federally financed R&D expenditures	Amount inflated due to weighting	Amount imputed and/or estimated	Imputed and/or estimated as percent of total
Total	9,611	60	272	2.8%
Engineering	1,535	9	111	7.2
Physical sciences	1,290	10	62	4.8
Environmental sciences	674	14	14	2.1
Mathematical sciences	159	2	4	2.5
Computer sciences	334	2	22	6.6
Life sciences	5,068	13	205	4.0
Psychology	169	7	7	3.9
Social sciences	225	2	6	2.8
Other sciences	157	**	1	0.4

NOTES: A double asterisk (**) indicates that the amount is less than $500,000.00, but greater than zero.
Because of rounding, components may not add to totals.
Percentages are calculated from unrounded figures.

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table A-4. Imputed and/or estimated amount for the Academic Science and Engineering R&D Expenditures Survey at universities and colleges, by source of funds: FY 1990

[Dollars in millions]

Source of funds	National estimate of separately bugeted R&D expenditures	Amount inflated due to weighting	Amount imputed and/or estimated	Imputed and/or estimated as percent of total
Total	16,325	127	331	2.0%
Federal government	9,611	60	271	2.8
State and local government	1,338	25	51	3.8
Industry	1,135	13	49	4.3
Institutional funds	3,017	19	90	3.0
All other sources	1,223	9	64	5.2

NOTES: Because of rounding, components may not add to totals.
Percentages are calculated from unrounded figures.

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table A-5. Standard errors of the estimates (SE) and coefficients of variation (CV) for the Academic Science and Engineering R&D Expenditures Survey at all institutions, by science and engineering field: FY 1990

[Dollars in thousands]

Science and engineering field	Separately bugeted R&D expeditures		Federally financed R&D expeditures	
	1.96 SE	1.96 CV	1.96 SE	1.96 CV
Total	42,213	0.3%	29,570	0.3%
Engineering	14,765	.6	7,471	.5
Physical sciences	6,437	.4	4,520	.4
Environmental sciences	15,477	1.5	12,411	1.8
Mathematical sciences	1,418	.6	739	.5
Computer sciences	2,149	.4	1,135	.3
Life sciences	11,080	.1	4,408	.5
Psychology	7,505	2.9	7,108	4.2
Social sciences	4,854	.7	1,743	.8
Other sciences	1,810	.5	1,560	.7

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Section B. Detailed Statistical Tables

To obtain accurate historical data, use only the latest detailed statistical tables for FY 1990 and not data published earlier. Institutions revise prior-year data when important changes occur in reporting practices and program classifications, and only the latest tables incorporate such changes.

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Universities and Colleges

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Table B-1. R&D expenditures at universities and colleges, by source of funds: fiscal years 1953-90

(Dollars in millions)

Fiscal year	Total	Source of funds				
		Federal Government	State and local governments	Industry	Institutional funds	All other sources
1953	255	138	37	19	35	26
1954	290	160	42	22	38	28
1955	312	169	47	25	41	30
1956	372	213	53	29	43	34
1957	410	229	60	34	49	38
1958	456	254	68	39	53	42
1959	526	306	76	39	58	47
1960	646	405	85	40	64	52
1961	763	500	95	40	70	58
1962	904	613	106	40	79	66
1963	1,081	760	118	41	89	73
1964	1,275	917	132	40	103	83
1965	1,474	1,073	143	41	124	93
1966	1,715	1,261	156	42	148	108
1967	1,921	1,409	164	48	181	119
1968	2,149	1,572	172	55	218	132
1969	2,225	1,600	197	60	223	145
1970	2,436	1,647	219	61	243	165
1971	2,500	1,724	235	70	274	177
1972	2,630	1,795	269	74	305	187
1973	2,884	1,985	295	84	318	202
1974	3,022	2,035	308	92	368	219
1975	3,409	2,288	332	113	417	259
1976	3,729	2,512	364	123	446	285
1977	4,067	2,726	374	139	514	314
1978 1/	4,625	3,059	414	170	623	359
1979	5,380	3,604	476	194	738	368
1980	6,077	4,104	496	236	837	403
1981	6,846	4,565	546	291	1,008	436
1982	7,323	4,763	616	337	1,115	492
1983	7,877	4,983	626	388	1,303	577
1984	8,617	5,424	690	475	1,414	615
1985	9,687	6,057	754	559	1,622	695
1986	10,926	6,703	916	699	1,873	735
1987	12,154	7,333	1,024	789	2,176	831
1988	13,464	8,181	1,107	871	2,364	941
1989	15,009	8,984	1,234	998	2,712	1,081
1990	16,325	9,611	1,338	1,135	3,017	1,223

1/ Estimated, based on data collected from doctorate-granting institutions only.

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-2. R&D expenditures at universities and colleges, by character of work: fiscal years 1953-90

[Dollars in millions]

Fiscal year	Total	Character of work			
		Basic research		Applied research and development	
		Amount	Percent of total	Amount	Percent of total
1953	255	110	43.1%	145	56.9%
1954	290	136	46.9	154	53.1
1955	312	159	51.0	153	49.0
1956	372	200	53.8	172	46.2
1957	410	240	58.5	170	41.5
1958	456	281	61.6	175	38.4
1959	526	343	65.2	183	34.8
1960	646	433	67.0	213	33.0
1961	763	536	70.2	227	29.8
1962	904	659	72.9	245	27.1
1963	1,081	814	75.3	267	24.7
1964	1,275	1,003	78.7	272	21.3
1965	1,474	1,138	77.2	336	22.8
1966	1,715	1,303	76.0	412	24.0
1967	1,921	1,457	75.8	464	24.2
1968	2,149	1,650	76.8	499	23.2
1969	2,225	1,711	76.9	514	23.1
1970	2,335	1,796	76.9	539	23.1
1971	2,500	1,914	76.6	586	23.4
1972	2,630	2,022	76.9	608	23.1
1973	2,884	2,053	71.2	831	28.8
1974	3,022	2,153	71.2	869	28.8
1975	3,409	2,410	70.7	999	29.3
1976	3,729	2,549	68.4	1,180	31.6
1977	4,067	2,800	68.8	1,267	31.2
1978 1/	4,625	NA	NA	NA	NA
1979	5,380	3,628	67.4	1,752	32.6
1980	6,077	4,042	66.5	2,034	33.5
1981	6,846	4,597	67.1	2,249	32.9
1982	7,323	4,882	66.7	2,441	33.3
1983	7,877	5,304	67.3	2,573	32.7
1984	8,617	5,735	66.6	2,882	33.4
1985	9,687	6,559	67.7	3,128	32.3
1986	10,926	7,495	68.6	3,431	31.4
1987	12,154	8,398	69.1	3,756	30.9
1988	13,464	8,827	65.6	4,637	34.4
1989	15,009	9,710	64.7	5,299	35.3
1990	16,325	10,431	63.9	5,894	36.1

1/ Data were not collected in fiscal year 1978.

NOTES: R&D expenditures by character of work are based on estimates provided by the universities and colleges for basic research.

NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-3. R&D expenditures at universities and colleges, by source of funds and science and engineering field: fiscal years 1983-90

[Dollars in thousands]

Source and field	1983	1984	1985	1986	1987	1988	1989	1990
Total	7,877,257	8,617,182	9,686,962	10,926,227	12,154,249	13,463,868	15,009,084	16,324,610
Source of funds								
Federal Government	4,983,216	5,423,809	6,056,519	6,702,661	7,333,076	8,181,246	8,983,986	9,611,045
State and local governments	625,761	690,459	753,884	916,364	1,024,484	1,106,973	1,233,906	1,337,957
Industry	388,105	474,750	559,224	699,157	789,238	870,844	997,989	1,135,229
Institutional funds	1,303,207	1,413,508	1,622,311	1,873,089	2,176,047	2,363,823	2,712,145	3,017,284
All other sources	576,968	614,656	695,024	734,956	831,404	940,982	1,081,058	1,223,096
Field								
Engineering, total	1,119,167	1,229,018	1,414,926	1,638,234	1,891,716	2,096,863	2,403,788	2,681,751
Aeronautical and astronautical	69,883	71,768	82,133	93,400	109,876	124,442	144,999	159,885
Chemical	91,217	96,162	109,872	126,318	140,753	154,439	185,330	206,172
Civil	126,651	139,893	153,530	179,270	193,044	227,961	251,336	289,746
Electrical	261,709	294,659	337,220	394,551	450,515	508,992	600,252	664,610
Mechanical	149,155	178,875	207,600	227,981	274,904	303,667	344,056	393,238
Metallurgical and materials 1/	NA	NA	NA	NA	NA	NA	NA	275,925
Other, n.e.c.	420,552	447,661	524,571	616,714	722,624	777,362	877,816	692,175
All sciences, total	6,758,090	7,388,164	8,272,036	9,287,993	10,262,533	11,367,005	12,605,296	13,642,859
Physical sciences	899,691	999,674	1,147,737	1,285,979	1,389,007	1,544,962	1,640,754	1,781,108
Astronomy	73,442	80,474	96,083	101,795	108,429	126,764	136,608	165,464
Chemistry	334,981	371,487	421,030	469,286	513,116	565,293	608,029	649,542
Physics	417,034	473,590	550,831	630,240	664,619	730,435	773,673	834,658
Other, n.e.c.	74,234	74,123	79,793	84,658	102,843	122,470	122,444	131,443
Environmental sciences	615,985	644,134	703,467	772,990	831,303	885,093	989,007	1,047,299
Atmospheric	98,368	101,795	107,534	119,948	128,291	133,668	162,589	167,813
Earth sciences	215,976	227,550	253,770	274,416	283,919	294,431	335,480	347,598
Oceanography	225,931	236,784	257,973	279,992	299,949	313,282	356,681	354,717
Other, n.e.c.	77,710	78,005	84,190	98,634	119,144	123,712	146,257	149,970
Mathematical sciences	106,440	123,262	128,030	151,903	176,872	199,104	214,631	221,297
Computer sciences	187,103	224,672	282,755	322,906	373,114	410,157	468,270	502,623
Life sciences	4,303,614	4,712,918	5,282,145	5,892,773	6,532,850	7,255,727	8,087,563	8,763,473
Agricultural sciences	921,445	954,565	999,674	1,089,949	1,121,465	1,177,253	1,287,075	1,350,591
Biological sciences	1,415,120	1,568,001	1,775,154	1,938,540	2,132,774	2,387,569	2,629,966	2,844,472
Medical sciences	1,835,875	2,040,616	2,327,268	2,625,341	3,015,867	3,387,734	3,843,241	4,196,183
Other, n.e.c.	131,174	149,736	180,049	238,943	262,744	303,171	327,281	372,226
Psychology	135,735	145,594	158,606	170,779	187,957	214,063	238,033	259,555
Social sciences	344,743	358,409	382,932	462,553	502,172	553,156	636,613	702,175
Economics	98,088	108,494	117,988	135,766	149,685	164,138	189,346	203,191
Political science	54,624	56,110	59,379	68,835	81,221	87,000	103,255	111,545
Sociology	77,347	69,885	74,752	96,441	96,325	109,691	121,324	134,010
Other, n.e.c.	114,684	123,920	130,813	161,511	174,941	192,327	222,688	253,429
Other sciences, n.e.c.	164,779	179,501	186,364	228,110	269,258	304,743	330,424	365,330

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

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Table B-4. Federally financed R&D expenditures at universities and colleges, by science and engineering field: fiscal years 1983-90

(Dollars in thousands)

Field	1983	1984	1985	1986	1987	1988	1989	1990
Total	4,983,216	5,423,809	6,056,519	6,702,661	7,333,076	8,181,246	8,983,986	9,611,045
Engineering, total	733,300	786,778	865,371	975,860	1,112,122	1,229,568	1,385,080	1,534,931
Aeronautical and astronautical	56,190	56,973	64,507	73,583	83,550	96,867	111,768	123,477
Chemical	52,533	54,856	58,542	67,575	69,567	77,980	92,960	99,937
Civil	63,853	72,662	79,250	89,087	91,039	105,083	105,062	119,250
Electrical	193,188	209,274	228,336	260,157	291,870	330,072	388,904	430,589
Mechanical	100,242	118,951	134,010	147,900	178,278	192,474	212,565	238,464
Metallurgical and materials 1/	NA	NA	NA	NA	NA	NA	NA	143,822
Other, n.e.c.	267,294	274,062	300,726	337,558	397,818	427,092	473,821	379,394
All sciences, total	4,249,916	4,637,031	5,191,148	5,726,801	6,220,954	6,951,678	7,598,906	8,076,113
Physical sciences	699,469	781,663	889,934	982,159	1,045,904	1,151,635	1,192,890	1,290,163
Astronomy	49,916	53,181	64,393	69,686	71,189	83,744	87,439	108,835
Chemistry	247,342	279,052	312,545	338,036	367,765	402,724	421,712	443,402
Physics	342,500	390,041	453,121	510,291	529,730	573,726	598,065	647,466
Other, n.e.c.	59,711	59,389	59,875	64,146	77,220	91,441	85,675	90,459
Environmental sciences	425,593	445,049	472,755	515,178	541,062	583,152	647,844	674,129
Atmospheric	77,128	82,171	85,872	97,469	105,820	109,218	127,842	127,487
Earth sciences	134,734	139,756	153,980	160,062	159,500	174,514	186,106	204,909
Oceanography	171,542	180,949	187,666	208,063	217,702	238,508	265,923	267,720
Other, n.e.c.	42,189	42,173	45,237	49,584	58,040	60,912	67,973	74,013
Mathematical sciences	76,473	92,304	97,011	114,368	131,378	149,259	155,989	158,688
Computer sciences	138,881	162,847	195,614	232,517	257,121	289,014	317,911	333,615
Life sciences	2,586,089	2,826,860	3,183,998	3,487,855	3,829,866	4,318,061	4,779,911	5,067,946
Agricultural sciences	261,459	268,867	293,999	292,378	297,543	322,561	348,373	348,133
Biological sciences	983,062	1,089,460	1,204,827	1,305,921	1,411,778	1,594,451	1,726,766	1,832,765
Medical sciences	1,261,446	1,374,159	1,576,816	1,742,881	1,963,335	2,214,392	2,506,673	2,667,710
Other, n.e.c.	80,122	94,374	108,356	146,675	157,210	186,657	198,099	219,340
Psychology	89,716	98,178	106,252	114,436	124,286	140,951	156,559	169,380
Social sciences	146,905	143,053	153,730	172,835	168,258	188,395	211,244	225,434
Economics	38,783	42,392	43,692	45,448	43,423	49,168	54,408	54,469
Political science	20,100	19,049	19,792	20,291	24,128	25,114	25,564	24,896
Sociology	42,924	37,928	39,874	49,425	44,653	48,371	53,646	59,769
Other, n.e.c.	45,098	43,684	50,372	57,671	56,054	65,742	77,627	86,300
Other sciences, n.e.c.	86,790	87,077	91,854	107,453	123,079	131,211	136,558	156,759

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-5. Non-Federal R&D expenditures at universities and colleges, by source of funds and science and engineering field: fiscal years 1983-90

[Dollars in thousands]

Source and field	1983	1984	1985	1986	1987	1988	1989	1990
Total non-Federal	2,894,041	3,193,373	3,630,443	4,223,566	4,821,173	5,282,622	6,025,098	6,713,565
Source of funds								
State and local governments	625,761	690,459	753,884	916,364	1,024,484	1,106,973	1,233,906	1,337,957
Industry	388,105	474,750	556,524	699,157	789,238	870,844	997,989	1,135,229
Institutional funds	1,303,207	1,413,508	1,662,311	1,873,089	2,176,047	2,363,823	2,712,145	3,017,284
All other sources	576,968	614,656	695,024	734,956	831,404	940,982	1,081,058	1,223,096
Field								
Engineering, total	385,867	442,240	549,555	662,374	779,594	867,295	1,018,708	1,146,820
Aeronautical and astronautical	13,693	14,795	17,626	19,817	26,326	27,573	33,231	36,409
Chemical	38,684	41,306	51,330	58,743	71,186	76,459	92,369	106,235
Civil	62,798	67,231	74,280	90,183	102,005	122,878	146,274	170,497
Electrical	68,521	85,385	108,884	134,394	158,645	178,920	211,347	234,021
Mechanical	48,913	59,924	73,590	80,081	96,626	111,193	131,491	154,775
Metallurgical and materials 1/	NA	NA	NA	NA	NA	NA	NA	132,102
Other, n.e.c.	153,258	173,599	223,845	279,156	324,806	350,270	403,995	312,781
All sciences, total	2,508,174	2,751,133	3,080,888	3,561,192	4,041,579	4,415,327	5,006,390	5,566,745
Physical sciences	200,222	218,011	257,803	303,820	343,103	393,327	447,863	490,945
Astronomy	23,526	27,293	31,690	33,109	37,240	43,020	49,166	56,629
Chemistry	87,639	92,435	108,485	131,230	145,351	162,569	186,318	206,030
Physics	74,534	83,549	97,710	119,949	134,889	156,709	173,608	186,792
Other, n.e.c.	14,523	14,734	19,918	20,512	25,623	31,029	36,769	41,494
Environmental sciences	190,392	199,085	230,712	257,812	290,241	301,941	341,164	373,170
Atmospheric	21,240	19,624	21,662	22,479	22,471	24,450	34,747	39,826
Earth sciences	81,242	87,794	99,790	114,334	124,419	119,917	136,374	149,690
Oceanography	52,389	53,835	70,307	71,929	82,247	94,774	91,758	107,697
Other, n.e.c.	35,521	35,832	38,953	49,050	61,104	62,800	78,285	75,957
Mathematical sciences	29,967	30,958	31,019	37,535	45,494	49,845	58,641	62,609
Computer sciences	48,222	61,825	87,141	90,389	115,993	121,143	150,359	169,009
Life sciences	1,717,525	1,886,058	2,098,147	2,404,918	2,702,984	2,937,666	3,307,652	3,695,526
Agricultural sciences	659,986	685,698	705,675	797,571	823,922	854,692	938,703	1,002,558
Biological sciences	432,058	478,541	570,327	632,619	720,996	793,118	903,201	1,011,707
Medical sciences	574,429	666,457	750,452	882,460	1,052,532	1,173,342	1,336,567	1,528,474
Other, n.e.c.	51,052	55,362	71,693	92,268	105,534	116,514	129,182	152,887
Psychology	46,019	47,416	52,354	56,343	63,671	73,112	81,474	90,175
Social sciences	197,838	215,356	229,202	289,718	333,914	364,761	425,369	476,741
Economics	59,305	66,102	74,296	90,318	106,262	114,970	134,938	148,722
Political science	34,524	37,061	39,587	48,544	57,093	61,886	77,691	86,648
Sociology	34,423	31,957	34,878	47,016	51,672	61,320	67,679	74,242
Other, n.e.c.	69,586	80,236	80,441	103,840	118,887	126,585	145,061	167,129
Other sciences, n.e.c.	77,989	92,424	94,510	120,657	146,179	173,532	193,866	208,571

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-6. R&D expenditures at doctorate-granting institutions, by source of funds and science and engineering field: fiscal years 1983-90

[Dollars in thousands]

Source and field	1983	1984	1985	1986	1987	1988	1989	1990
Total	7,755,419	8,483,497	9,544,538	10,769,576	11,997,969	13,286,901	14,762,275	16,057,003
Source of funds								
Federal Government	4,905,224	5,336,924	5,962,822	6,600,405	7,235,732	8,070,152	8,836,691	9,453,757
State and local governments	613,446	677,504	740,262	901,143	1,006,898	1,088,892	1,202,546	1,298,659
Industry	380,486	465,818	549,842	687,782	776,507	856,855	977,729	1,114,503
Institutional funds	1,286,310	1,396,699	1,605,039	1,854,909	2,157,689	2,340,821	2,680,475	2,982,116
All other sources	569,953	606,552	686,573	725,337	821,143	930,181	1,064,834	1,207,968
Field								
Engineering, total	1,108,379	1,215,966	1,398,932	1,619,133	1,870,639	2,070,556	2,368,226	2,638,425
Aeronautical and astronautical	69,136	69,987	79,867	90,635	106,646	120,252	142,544	158,127
Chemical	90,982	95,918	109,630	126,028	140,200	153,270	183,624	204,413
Civil	124,436	137,810	151,135	176,629	190,303	224,449	246,813	285,164
Electrical	259,299	291,804	333,654	390,228	445,773	503,027	589,092	653,694
Mechanical	147,310	176,764	204,589	224,244	270,651	299,167	337,781	384,973
Metallurgical and materials 1/	NA	NA	NA	NA	NA	NA	NA	273,818
Other, n.e.c.	417,216	443,683	520,057	611,369	717,066	770,391	868,372	678,236
All sciences, total	6,647,040	7,267,531	8,145,606	9,150,443	10,127,330	11,216,345	12,394,049	13,418,578
Physical sciences	880,342	978,224	1,122,949	1,258,055	1,359,660	1,512,263	1,601,481	1,736,378
Astronomy	72,714	79,768	95,478	101,191	107,840	126,037	136,571	163,415
Chemistry	323,392	358,500	406,455	453,435	497,702	546,814	584,346	623,795
Physics	410,546	466,371	541,946	620,625	653,249	718,653	760,517	816,633
Other, n.e.c.	73,690	73,585	79,070	82,804	100,869	120,759	120,047	130,535
Environmental sciences	600,646	628,810	686,336	754,988	812,338	866,997	959,434	1,013,979
Atmospheric	95,862	99,594	105,108	117,481	125,327	130,291	153,238	158,057
Earth sciences	210,550	222,788	248,909	269,118	278,206	289,431	318,663	347,106
Oceanography	220,552	232,432	254,173	276,208	296,123	330,184	346,189	363,756
Other, n.e.c.	73,682	73,996	78,146	92,181	112,682	117,091	141,344	145,060
Mathematical sciences	102,868	119,160	124,366	147,713	173,579	195,524	210,235	216,439
Computer sciences	184,507	220,626	277,673	316,858	365,348	401,114	460,482	494,418
Life sciences	4,257,899	4,661,673	5,228,891	5,835,960	6,480,551	7,190,856	7,988,817	8,666,523
Agricultural sciences	899,830	930,307	975,726	1,064,603	1,098,531	1,151,721	1,246,862	1,309,874
Biological sciences	1,394,072	1,544,481	1,750,123	1,912,650	2,108,537	2,353,999	2,577,521	2,791,534
Medical sciences	1,834,943	2,039,253	2,325,329	2,622,657	3,013,040	3,384,826	3,838,749	4,194,137
Other, n.e.c.	129,054	147,632	177,713	236,050	260,443	300,310	325,685	370,978
Psychology	131,863	141,480	154,130	166,009	182,701	207,806	227,299	245,018
Social sciences	327,085	340,542	367,719	446,155	487,947	539,874	619,320	686,246
Economics	94,979	103,233	115,129	133,443	147,485	161,491	185,875	199,356
Political science	52,828	54,328	57,593	67,057	79,754	85,448	102,066	110,110
Sociology	71,156	64,694	69,765	91,858	92,122	106,652	116,649	130,174
Other, n.e.c.	108,122	118,287	125,232	153,797	168,586	186,283	214,730	246,606
Other sciences, n.e.c.	161,830	177,016	183,542	224,705	265,206	301,911	326,981	359,577

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-7. Federally financed R&D expenditures at doctorate-granting institutions, by science and engineering field: fiscal years 1983-90

[Dollars in thousands]

Field	1983	1984	1985	1986	1987	1988	1989	1990
Total	4,905,224	5,336,924	5,962,822	6,600,405	7,235,732	8,070,152	8,836,691	9,453,757
Engineering, total	727,040	779,778	856,535	965,325	1,100,997	1,215,968	1,367,531	1,513,915
Aeronautical and astronautical	55,565	55,445	62,477	71,085	80,625	93,087	109,749	122,017
Chemical	52,471	54,766	58,456	67,439	69,346	77,261	91,815	99,044
Civil	62,326	71,271	77,702	87,480	89,399	102,966	103,871	118,464
Electrical	191,916	208,002	226,735	258,343	290,034	327,907	382,532	423,664
Mechanical	99,091	117,863	132,275	145,607	175,785	189,871	209,504	233,735
Metallurgical and materials 1/	NA	NA	NA	NA	NA	NA	NA	141,976
Other, n.e.c.	265,671	272,431	298,890	335,371	395,808	424,876	470,060	375,015
All sciences, total	4,178,184	4,557,146	5,106,287	5,635,080	6,134,735	6,854,184	7,469,160	7,939,842
Physical sciences	687,141	767,343	872,848	963,310	1,026,094	1,129,545	1,167,233	1,261,808
Astronomy	49,439	52,667	63,919	69,291	70,798	83,225	87,422	108,805
Chemistry	240,476	270,571	302,661	327,044	357,461	389,779	406,998	428,016
Physics	337,731	384,966	446,656	503,304	521,306	565,691	588,323	635,159
Other, n.e.c.	59,495	59,139	59,612	63,671	76,529	90,850	84,490	89,828
Environmental sciences	416,015	435,209	461,827	503,709	529,401	571,147	625,370	651,714
Atmospheric	74,738	80,018	83,606	95,164	102,991	106,059	119,140	119,230
Earth sciences	131,357	137,445	151,588	157,461	156,522	172,003	184,087	201,642
Oceanography	170,292	178,361	185,800	206,295	216,097	236,779	256,879	259,000
Other, n.e.c.	39,628	39,385	40,833	44,789	53,791	56,306	65,264	71,842
Mathematical sciences	74,301	90,089	94,359	111,590	129,164	146,906	153,556	156,392
Computer sciences	137,689	160,587	192,412	228,493	252,028	282,527	313,675	329,922
Life sciences	2,551,668	2,789,340	3,144,834	3,446,823	3,794,616	4,275,071	4,719,621	5,007,314
Agricultural sciences	243,754	249,466	274,957	272,340	280,849	302,906	322,291	321,259
Biological sciences	968,499	1,073,985	1,187,918	1,289,203	1,396,811	1,575,023	1,696,979	1,800,810
Medical sciences	1,260,910	1,373,183	1,575,369	1,740,837	1,961,429	2,212,460	2,502,627	2,666,460
Other, n.e.c.	78,505	92,706	106,590	144,443	155,727	184,682	197,724	218,785
Psychology	87,149	95,480	103,175	111,021	120,441	136,275	148,318	157,839
Social sciences	139,332	133,811	146,678	164,829	162,663	182,862	205,895	219,950
Economics	36,687	38,294	42,045	44,489	45,675	48,131	53,543	53,370
Political science	19,368	18,182	18,869	19,312	23,512	24,467	25,308	24,665
Sociology	40,102	35,177	37,309	47,056	42,362	46,923	52,353	58,464
Other, n.e.c.	43,175	42,158	48,455	53,972	51,114	63,341	74,691	83,451
Other sciences, n.e.c.	84,889	85,287	90,154	105,305	120,328	129,851	135,492	154,903

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-8. Non-Federal R&D expenditures at doctorate-granting institutions, by source of funds and science and engineering field: fiscal years 1983-90

[Dollars in thousands]

Source and field	1983	1984	1985	1986	1987	1988	1989	1990
Total non-Federal	2,850,195	3,146,573	3,581,716	4,169,171	4,762,237	5,216,749	5,925,584	6,603,246
Source of funds								
State and local governments	613,446	677,504	740,262	901,143	1,006,898	1,088,892	1,202,546	1,298,659
Industry	380,486	465,818	549,842	687,782	776,507	856,855	977,729	1,114,503
Institutional funds	1,286,310	1,396,699	1,605,039	1,854,909	2,157,689	2,340,821	2,680,475	2,982,116
All other sources	569,953	606,552	686,573	725,337	821,143	930,181	1,064,834	1,207,968
Field								
Engineering, total	381,339	436,188	542,397	653,808	769,642	854,588	1,000,695	1,124,510
Aeronautical and astronautical	13,571	14,542	17,390	19,550	26,021	27,165	32,795	36,110
Chemical	38,511	41,152	51,174	58,589	70,854	76,009	91,809	105,369
Civil	62,110	66,539	73,433	89,149	100,904	121,483	142,942	166,700
Electrical	67,383	83,802	106,919	131,885	155,739	175,120	206,560	230,030
Mechanical	48,219	58,901	72,314	78,637	94,866	109,296	128,277	151,238
Metallurgical and materials 1/	NA	NA	NA	NA	NA	NA	NA	131,842
Other, n.e.c.	151,545	171,252	221,167	275,998	321,258	345,515	398,312	303,221
All sciences, total	2,468,856	2,710,385	3,039,319	3,515,363	3,992,595	4,362,161	4,924,889	5,478,736
Physical sciences	193,201	210,881	250,101	294,745	333,566	382,718	434,248	474,570
Astronomy	23,275	27,101	31,559	31,900	37,042	42,812	49,149	56,610
Chemistry	82,916	87,929	103,794	126,391	140,241	157,035	177,348	195,779
Physics	72,815	81,405	95,290	117,321	131,943	152,962	172,194	181,474
Other, n.e.c.	14,195	14,446	19,458	19,133	24,340	29,909	35,557	40,707
Environmental sciences	184,631	193,601	224,509	251,279	282,937	295,850	334,064	362,265
Atmospheric	21,124	19,576	21,502	22,317	22,336	24,232	34,098	38,827
Earth sciences	79,193	85,343	97,321	111,657	121,684	117,428	134,576	145,464
Oceanography	50,260	54,071	68,373	69,913	80,026	93,405	89,310	104,756
Other, n.e.c.	34,054	34,611	37,313	47,392	58,891	60,785	76,080	73,218
Mathematical sciences	28,567	29,071	30,007	36,123	44,415	48,618	56,679	60,047
Computer sciences	46,818	60,039	85,261	88,365	113,320	118,587	146,807	164,496
Life sciences	1,706,231	1,872,333	2,084,057	2,389,137	2,685,935	2,915,785	3,269,196	3,659,209
Agricultural sciences	656,076	680,841	700,769	792,263	817,682	848,815	924,571	988,615
Biological sciences	425,573	470,496	562,205	623,447	711,726	778,976	880,542	990,724
Medical sciences	574,033	666,070	749,960	881,820	1,051,811	1,172,366	1,336,122	1,527,677
Other, n.e.c.	50,549	54,926	71,123	91,607	104,716	115,628	127,961	152,193
Psychology	44,714	46,000	50,955	54,988	62,260	71,531	78,981	87,179
Social sciences	187,753	206,731	221,041	281,326	325,284	357,012	413,425	466,296
Economics	58,292	64,939	73,084	88,954	104,810	113,360	132,332	145,986
Political science	33,460	36,146	38,724	47,745	56,242	60,981	76,758	85,445
Sociology	31,054	29,517	32,456	44,802	49,760	59,729	64,296	71,710
Other, n.e.c.	64,947	76,129	76,777	99,825	114,472	122,942	140,039	163,155
Other sciences, n.e.c.	76,941	91,729	93,388	119,400	144,878	172,060	191,489	204,674

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-9. R&D expenditures at public universities and colleges, by source of funds and science and engineering field: fiscal years 1983-90

[Dollars in thousands]

Source and field	1983	1984	1985	1986	1987	1988	1989	1990
Total	5,104,878	5,578,608	6,282,409	7,105,379	7,896,868	8,763,152	9,844,858	10,799,382
Source of funds								
Federal Government	2,861,240	3,110,414	3,480,966	3,829,884	4,168,377	4,699,781	5,194,438	5,608,210
State and local governments	572,676	632,165	685,611	832,647	927,345	995,847	1,108,099	1,202,903
Industry	243,046	285,044	341,454	439,157	493,429	545,271	636,466	738,248
Institutional funds	1,069,772	1,169,381	1,332,607	1,553,957	1,809,696	1,962,882	2,261,354	2,519,826
All other sources	358,144	381,604	441,771	449,734	498,021	559,371	644,501	730,195
Field								
Engineering, total	676,188	733,396	849,235	1,002,243	1,167,069	1,334,802	1,563,704	1,793,870
Aeronautical and astronautical	32,702	33,468	39,593	43,453	54,533	68,435	78,589	90,899
Chemical	58,612	59,471	69,201	77,578	84,379	94,178	112,554	134,336
Civil	99,709	107,650	115,587	138,709	146,667	173,012	199,310	235,933
Electrical	146,232	159,811	181,075	217,688	250,216	298,321	364,230	408,396
Mechanical	77,668	92,266	113,798	128,570	156,894	183,967	207,136	245,555
Metallurgical and materials 1/	NA	NA	NA	NA	NA	NA	NA	202,080
Other, n.e.c.	261,265	280,730	329,981	396,245	474,380	516,889	601,885	476,672
All sciences, total	4,428,690	4,845,212	5,433,174	6,103,136	6,729,799	7,428,350	8,281,154	9,005,512
Physical sciences	518,049	589,395	680,965	752,402	826,869	926,579	1,012,085	1,101,083
Astronomy	53,376	57,672	65,797	69,560	76,175	88,361	95,772	113,611
Chemistry	211,011	236,090	267,593	296,723	329,518	361,737	391,485	416,856
Physics	223,678	262,884	313,218	348,778	370,863	414,819	455,082	495,930
Other, n.e.c.	29,984	32,749	34,357	37,341	50,313	61,662	69,745	74,686
Environmental sciences	441,402	466,875	520,489	581,576	629,345	660,738	723,581	785,486
Atmospheric	76,913	78,719	88,012	100,121	108,433	106,860	125,499	133,525
Earth sciences	155,718	165,484	183,898	202,241	207,508	212,335	231,111	256,333
Oceanography	163,439	174,508	194,124	213,067	233,683	262,149	271,816	298,476
Other, n.e.c.	45,332	48,164	54,455	66,147	79,721	79,394	95,155	97,153
Mathematical sciences	58,181	66,017	67,388	83,032	99,352	108,455	120,662	128,405
Computer sciences	80,341	93,484	123,956	140,827	167,689	171,971	205,165	235,603
Life sciences	2,862,064	3,140,571	3,510,667	3,907,660	4,291,826	4,763,100	5,334,221	5,761,745
Agricultural sciences	899,676	923,526	964,130	1,051,378	1,081,046	1,133,591	1,238,815	1,302,569
Biological sciences	854,528	965,988	1,120,422	1,222,202	1,320,534	1,480,554	1,640,314	1,773,350
Medical sciences	1,041,546	1,165,850	1,318,938	1,479,816	1,719,713	1,962,813	2,251,236	2,458,377
Other, n.e.c.	70,314	85,207	107,177	154,264	170,533	186,142	203,856	227,448
Psychology	91,052	95,581	106,979	113,847	123,426	140,651	159,573	174,828
Social sciences	249,805	262,887	280,328	339,544	362,698	403,225	459,077	523,490
Economics	75,325	83,448	91,820	106,794	114,256	120,285	139,125	152,352
Political science	37,933	37,948	41,036	45,822	49,998	52,302	60,891	71,767
Sociology	54,690	46,386	48,765	60,560	58,272	71,794	80,814	94,760
Other, n.e.c.	81,857	95,105	98,707	126,368	140,172	158,844	178,248	204,610
Other sciences, n.e.c.	127,796	130,402	142,402	184,248	228,594	253,631	266,791	294,871

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-10. Federally financed R&D expenditures at public universities and colleges, by science and engineering field: fiscal years 1983-90

[Dollars in thousands]

Field	1983	1984	1985	1986	1987	1988	1989	1990
Total	2,861,240	3,110,414	3,480,966	3,829,884	4,168,377	4,699,781	5,194,438	5,608,210
Engineering, total	382,083	395,397	434,854	499,070	570,484	672,360	770,664	895,062
Aeronautical and astronautical	23,891	22,819	27,421	31,022	36,985	50,648	57,169	65,948
Chemical	31,234	35,522	34,879	37,244	35,695	41,882	47,281	59,525
Civil	44,685	50,697	54,689	63,557	60,052	70,454	74,678	87,955
Electrical	96,470	100,327	105,840	123,474	139,873	172,617	215,402	245,934
Mechanical	46,309	52,976	63,804	71,841	88,808	101,680	108,915	127,973
Metallurgical and materials 1/	NA	NA	NA	NA	NA	NA	NA	97,649
Other, n.e.c.	139,494	136,056	148,221	171,932	209,141	235,079	267,219	213,049
All sciences, total	2,479,157	2,715,017	3,046,112	3,330,814	3,597,893	4,027,421	4,423,775	4,713,148
Physical sciences	374,817	427,134	488,175	523,145	561,848	622,990	664,613	720,449
Astronomy	36,783	38,416	43,647	45,323	46,780	53,198	55,157	68,112
Chemistry	149,837	168,357	189,547	201,787	221,851	243,849	256,802	266,468
Physics	168,412	199,165	237,208	255,634	264,665	290,436	314,866	346,020
Other, n.e.c.	19,785	21,196	17,773	20,401	28,552	35,307	37,789	39,848
Environmental sciences	282,492	299,358	321,740	357,595	372,305	397,841	425,147	454,924
Atmospheric	57,852	61,262	68,305	80,071	87,896	86,028	94,880	97,159
Earth sciences	87,701	91,954	97,528	100,626	96,205	107,025	110,731	122,534
Oceanography	119,601	127,007	132,640	149,771	158,458	175,511	188,541	199,101
Other, n.e.c.	17,338	19,135	23,267	27,127	29,746	29,277	30,975	36,130
Mathematical sciences	34,410	40,673	41,450	50,634	60,130	66,686	72,191	76,626
Computer sciences	46,136	53,888	65,746	82,533	91,779	93,963	103,467	114,234
Life sciences	1,524,464	1,671,041	1,887,445	2,041,249	2,221,835	2,521,675	2,799,592	2,939,469
Agricultural sciences	254,396	261,305	285,264	282,399	286,608	312,179	336,311	336,689
Biological sciences	557,094	618,856	688,995	742,064	791,921	896,601	978,872	1,023,546
Medical sciences	678,980	747,200	858,884	933,254	1,053,016	1,207,628	1,373,373	1,459,457
Other, n.e.c.	33,994	43,680	54,302	83,532	90,290	105,267	111,036	119,778
Psychology	57,569	61,591	67,441	71,564	75,874	86,759	98,634	108,302
Social sciences	93,580	94,555	100,899	114,937	108,910	127,808	145,739	166,284
Economics	27,801	32,348	33,893	35,094	32,329	35,358	41,542	44,322
Political science	11,788	11,446	12,383	12,174	12,378	12,554	12,738	13,859
Sociology	27,387	22,559	22,425	27,442	23,809	28,959	32,390	38,756
Other, n.e.c.	26,604	28,202	32,198	40,227	40,394	50,737	59,070	69,347
Other sciences, n.e.c.	65,689	66,777	73,216	89,157	105,212	109,699	114,391	132,861

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-11. Non-Federal R&D expenditures at public universities and colleges, by source of funds and science and engineering field: fiscal years 1983-90

(Dollars in thousands)

Source and field	1983	1984	1985	1986	1987	1988	1989	1990
Total non-Federal	2,243,638	2,468,194	2,801,443	3,275,495	3,728,491	4,063,371	4,650,420	5,191,172
Source of funds								
State and local governments	572,676	632,165	685,611	832,647	927,345	995,847	1,108,099	1,202,903
Industry	243,046	285,044	341,454	438,157	493,429	525,271	636,466	738,248
Institutional funds	1,069,772	1,169,381	1,332,607	1,553,927	1,809,696	1,962,882	2,261,354	2,519,826
All other sources	358,144	381,604	441,771	449,734	498,021	559,371	644,501	730,195
Field								
Engineering, total	294,105	337,999	414,381	503,173	596,585	662,442	793,040	898,808
Aeronautical and astronautical	8,811	10,649	12,172	12,431	17,548	17,787	21,420	24,952
Chemical	27,378	26,949	34,322	40,334	48,754	52,296	65,272	77,781
Civil	55,024	56,953	60,898	75,152	86,615	102,558	124,633	147,978
Electrical	49,762	59,484	75,235	94,214	110,343	125,704	148,828	162,461
Mechanical	31,359	39,290	49,994	56,729	68,086	82,287	98,221	117,582
Metallurgical and materials 1/	NA	NA	NA	NA	NA	NA	NA	104,430
Other, n.e.c.	121,771	144,674	181,760	224,313	265,239	281,810	334,666	263,623
All sciences, total	1,949,533	2,130,195	2,387,062	2,772,322	3,131,906	3,400,929	3,857,379	4,292,364
Physical sciences	143,232	162,261	192,790	229,257	265,021	303,589	347,471	380,635
Astronomy	16,503	19,256	22,150	24,237	29,395	35,163	40,615	45,499
Chemistry	61,174	67,733	78,046	94,936	107,667	117,888	134,683	150,388
Physics	55,266	63,719	76,010	93,144	106,198	124,183	140,217	149,910
Other, n.e.c.	10,199	11,553	16,584	16,940	21,761	26,355	31,957	34,838
Environmental sciences	158,910	167,517	198,749	223,981	257,040	262,897	298,434	330,562
Atmospheric	19,061	17,457	19,707	20,050	20,537	20,832	30,619	36,366
Earth sciences	68,017	73,530	86,370	101,615	111,303	105,310	120,360	133,799
Oceanography	43,838	47,501	61,484	63,296	75,225	86,638	83,275	99,375
Other, n.e.c.	27,994	29,029	31,188	39,020	49,975	50,117	64,180	61,023
Mathematical sciences	23,771	25,344	25,938	32,398	39,222	41,769	48,470	51,780
Computer sciences	34,205	39,596	58,210	58,294	75,910	78,008	101,697	121,369
Life sciences	1,337,600	1,469,530	1,623,222	1,866,411	2,069,991	2,241,425	2,534,629	2,822,275
Agricultural sciences	641,280	662,221	678,866	768,979	794,438	821,412	902,504	965,880
Biological sciences	297,434	347,132	431,427	480,138	528,613	583,953	661,443	749,804
Medical sciences	362,566	418,650	460,054	546,562	666,697	755,185	877,864	998,920
Other, n.e.c.	36,320	41,527	52,875	70,732	80,243	80,875	92,820	107,671
Psychology	33,483	33,990	39,538	42,283	47,552	53,892	60,939	66,527
Social sciences	156,225	168,332	179,429	224,607	253,788	275,417	313,338	357,206
Economics	47,524	51,100	57,927	71,700	81,927	84,727	97,583	108,030
Political science	26,145	26,502	28,653	33,648	37,620	39,748	48,153	57,908
Sociology	27,303	23,827	26,340	33,118	34,463	42,835	48,454	51,003
Other, n.e.c.	55,253	66,903	66,509	86,141	99,778	108,107	119,178	140,265
Other sciences, n.e.c.	62,107	63,625	69,186	95,091	123,382	143,932	152,400	162,010

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-12. R&D expenditures at private universities and colleges, by source of funds and science and engineering field: fiscal years 1983-90

(Dollars in thousands)

Source and field	1983	1984	1985	1986	1987	1988	1989	1990
Total	2,772,379	3,038,574	3,404,553	3,820,848	4,257,381	4,700,716	5,164,226	5,525,227
Source of funds								
Federal Government	2,121,976	2,313,395	2,575,553	2,872,777	3,164,699	3,481,465	3,789,547	4,002,834
State and local governments	53,085	58,294	68,273	83,717	97,139	111,126	125,806	135,053
Industry	145,059	189,706	217,770	260,000	295,809	325,573	361,523	396,982
Institutional funds	233,435	244,127	289,704	319,132	366,351	400,941	450,791	497,458
All other sources	218,824	233,052	253,253	285,222	333,383	381,611	436,558	492,900
Field								
Engineering, total	442,979	495,622	565,691	635,991	724,647	762,061	840,084	887,881
Aeronautical and astronautical	37,181	38,300	42,540	49,947	55,343	56,007	66,410	68,986
Chemical	32,605	36,691	40,671	48,740	56,374	60,261	72,776	71,836
Civil	26,942	32,243	37,943	40,561	46,377	54,949	52,026	53,814
Electrical	115,477	134,848	156,145	176,863	200,299	210,671	236,021	256,215
Mechanical	71,487	86,609	93,802	99,411	118,010	119,700	136,920	147,683
Metallurgical and materials 1/	NA	NA	NA	NA	NA	NA	NA	73,845
Other, n.e.c.	159,287	166,931	194,590	220,469	248,244	260,473	275,931	215,502
All sciences, total	2,329,400	2,542,952	2,838,862	3,184,857	3,532,734	3,938,655	4,324,142	4,637,346
Physical sciences	381,642	410,279	466,772	533,577	562,138	618,383	628,669	680,024
Astronomy	20,066	22,802	30,286	32,235	32,254	38,403	40,836	51,853
Chemistry	123,970	135,397	153,437	172,563	183,598	203,556	216,545	232,576
Physics	193,356	210,706	237,613	281,462	293,756	315,616	318,590	338,328
Other, n.e.c.	44,250	41,374	45,436	47,317	52,530	60,808	52,698	57,267
Environmental sciences	174,583	177,259	182,978	191,414	201,958	224,355	265,427	261,813
Atmospheric	21,455	23,076	19,522	19,827	19,858	26,808	37,090	33,788
Earth sciences	60,258	62,066	69,872	72,175	76,411	82,096	91,369	98,267
Oceanography	60,492	62,276	63,849	66,925	66,266	71,133	85,865	76,941
Other, n.e.c.	32,378	29,841	29,735	32,487	39,423	44,318	51,103	52,817
Mathematical sciences	48,259	57,245	60,642	68,871	77,520	90,649	93,969	92,891
Computer sciences	106,762	131,188	158,799	182,079	205,425	238,186	263,105	267,020
Life sciences	1,441,550	1,572,347	1,771,478	1,985,113	2,241,024	2,492,627	2,753,342	3,001,728
Agricultural sciences	25,769	31,039	35,544	38,571	40,419	43,662	48,261	48,022
Biological sciences	560,592	602,013	654,732	716,338	812,240	907,015	989,652	1,071,121
Medical sciences	794,329	874,766	1,008,330	1,145,525	1,296,154	1,424,921	1,592,004	1,737,806
Other, n.e.c.	60,860	64,529	72,872	84,679	92,211	117,029	123,425	144,778
Psychology	44,683	50,013	51,627	56,932	64,531	73,412	78,460	84,726
Social sciences	94,938	95,522	102,604	123,009	139,474	149,931	177,536	178,685
Economics	22,763	25,046	26,168	28,972	35,429	43,853	50,221	50,839
Political science	16,691	18,162	18,343	23,013	31,223	34,698	42,364	39,777
Sociology	22,657	23,499	25,987	35,881	38,053	37,897	40,510	39,250
Other, n.e.c.	32,827	28,815	32,106	35,143	34,769	33,483	44,440	48,819
Other sciences, n.e.c.	36,983	49,099	43,962	43,862	40,664	51,112	63,633	70,459

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-13. Federally financed R&D expenditures at private universities and colleges, by science and engineering field: fiscal years 1983-90

[Dollars in thousands]

Field	1983	1984	1985	1986	1987	1988	1989	1990
Total	2,121,976	2,313,395	2,575,553	2,872,777	3,164,699	3,481,465	3,789,547	4,002,834
Engineering, total	351,217	391,381	430,517	476,790	541,638	557,208	614,416	639,869
Aeronautical and astronautical	32,299	34,154	37,086	42,561	46,565	46,219	54,599	57,529
Chemical	21,299	22,334	23,663	30,331	33,642	36,098	45,679	43,382
Civil	19,168	21,965	24,561	25,530	30,987	34,629	30,384	31,295
Electrical	96,718	108,947	122,496	136,683	151,997	157,455	173,502	184,655
Mechanical	53,933	65,975	70,206	76,059	89,470	90,794	103,650	110,491
Metallurgical and materials 1/	NA	NA	NA	NA	NA	NA	NA	46,173
Other, n.e.c.	127,800	138,006	152,505	165,626	188,677	192,013	206,602	166,345
All sciences, total	1,770,759	1,922,014	2,145,036	2,395,987	2,623,061	2,924,257	3,175,131	3,362,965
Physical sciences	324,652	354,529	401,759	459,014	484,056	528,645	528,277	569,714
Astronomy	13,133	14,765	20,746	24,363	24,409	30,546	32,282	40,723
Chemistry	97,505	110,695	122,998	136,249	145,914	158,875	164,910	176,934
Physics	174,088	190,876	215,913	254,657	265,065	283,090	283,199	301,446
Other, n.e.c.	39,926	38,193	42,102	43,745	48,668	56,134	47,886	50,611
Environmental sciences	143,101	145,691	151,015	157,583	168,757	185,311	222,697	219,205
Atmospheric	19,276	20,909	17,567	17,398	17,924	23,190	32,962	30,328
Earth sciences	47,033	47,802	56,452	59,436	63,295	67,489	75,355	82,375
Oceanography	51,941	53,942	55,026	58,293	59,244	62,997	77,382	68,619
Other, n.e.c.	24,851	23,038	21,970	22,457	28,294	31,635	36,998	37,883
Mathematical sciences	42,063	51,631	55,561	63,734	71,248	82,573	83,798	82,062
Computer sciences	92,745	108,959	129,868	149,984	165,342	195,051	214,443	219,380
Life sciences	1,061,625	1,155,819	1,296,553	1,446,606	1,608,031	1,796,386	1,980,319	2,128,477
Agricultural sciences	7,063	7,562	8,745	9,070	10,934	10,383	13,062	11,444
Biological sciences	425,968	470,604	519,833	561,857	619,877	697,850	747,894	809,218
Medical sciences	582,466	626,959	717,933	809,627	910,319	1,006,764	1,133,301	1,208,253
Other, n.e.c.	46,128	50,694	54,054	63,143	66,920	81,390	87,063	99,562
Psychology	32,147	36,587	38,811	42,872	48,412	54,192	57,925	61,078
Social sciences	53,325	48,498	52,831	57,898	59,348	60,587	65,505	59,150
Economics	10,982	10,044	9,799	10,354	11,094	13,610	15,866	10,147
Political science	8,312	7,603	7,409	8,117	11,750	13,560	12,826	11,037
Sociology	15,537	15,369	17,449	21,983	20,844	19,412	21,256	21,013
Other, n.e.c.	18,494	15,482	18,174	17,444	15,660	15,005	18,557	16,953
Other sciences, n.e.c.	21,101	20,300	18,638	18,296	17,867	21,512	22,167	23,898

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-14. Non-Federal R&D expenditures at private universities and colleges, by source of funds and science and engineering field: fiscal years 1983-90

[Dollars in thousands]

Source and field	1983	1984	1985	1986	1987	1988	1989	1990
Total non-Federal	650,403	725,179	829,000	948,071	1,092,682	1,219,251	1,374,678	1,522,393
Source of funds								
State and local governments	53,085	58,294	68,273	83,717	97,139	111,126	125,806	135,053
Industry	145,059	189,706	217,770	260,000	295,809	325,573	361,523	396,982
Institutional funds	233,435	244,127	289,704	319,132	366,351	400,941	450,791	497,458
All other sources	218,824	233,052	253,253	285,222	333,383	381,611	436,558	492,900
Field								
Engineering, total	91,762	104,241	135,174	159,201	183,009	204,853	225,668	248,012
Aeronautical and astronautical	4,882	4,146	5,454	7,386	8,778	9,788	11,811	11,457
Chemical	11,306	14,357	17,008	18,409	22,432	24,163	27,097	28,454
Civil	7,774	10,278	13,382	15,031	15,390	20,320	21,642	22,519
Electrical	18,759	25,901	33,649	40,180	48,302	53,216	62,519	71,560
Mechanical	17,554	20,634	23,596	23,352	28,540	28,906	33,270	37,192
Metallurgical and materials 1/	NA	NA	NA	NA	NA	NA	NA	27,672
Other, n.e.c.	31,487	28,925	42,085	54,843	59,567	68,460	69,329	49,157
All sciences, total	558,641	620,938	693,826	788,870	909,673	1,014,398	1,149,010	1,274,382
Physical sciences	56,990	55,750	65,013	74,563	78,082	89,738	100,392	110,310
Astronomy	6,933	8,037	9,540	7,872	7,845	7,857	8,554	11,130
Chemistry	26,465	24,702	30,439	36,314	37,684	44,681	51,635	55,642
Physics	19,268	19,830	21,700	26,805	28,691	32,526	35,391	36,882
Other, n.e.c.	4,324	3,181	3,334	3,572	3,862	4,674	4,812	6,656
Environmental sciences	31,482	31,568	31,963	33,831	33,201	39,044	42,730	42,608
Atmospheric	2,179	2,167	1,955	2,429	1,934	3,618	4,128	3,460
Earth sciences	13,225	14,264	13,420	12,739	13,116	14,607	16,014	15,892
Oceanography	8,551	8,334	8,823	8,633	7,022	8,136	8,483	8,322
Other, n.e.c.	7,527	6,803	7,765	10,030	11,129	12,683	14,105	14,934
Mathematical sciences	6,196	5,614	5,081	5,137	6,272	8,076	10,171	10,829
Computer sciences	14,017	22,229	28,931	32,095	40,083	43,135	48,662	47,640
Life sciences	379,925	416,528	474,925	538,507	632,993	696,241	773,023	873,251
Agricultural sciences	18,706	23,477	26,809	28,592	29,484	33,280	36,199	36,578
Biological sciences	134,624	131,409	138,900	152,481	192,383	209,165	241,758	261,903
Medical sciences	211,863	247,807	290,398	335,898	385,835	418,157	458,704	529,553
Other, n.e.c.	14,732	13,835	18,818	21,536	25,291	35,639	36,362	45,216
Psychology	12,536	13,426	12,816	14,060	16,119	19,220	20,535	23,648
Social sciences	41,613	47,024	49,773	65,111	80,126	89,344	112,031	119,535
Economics	11,781	15,002	16,369	18,618	24,335	30,243	37,355	40,692
Political science	8,379	10,559	10,934	14,896	19,473	22,138	29,538	28,740
Sociology	7,120	8,130	8,538	13,898	17,209	18,485	19,254	18,237
Other, n.e.c.	14,333	13,333	13,932	17,699	19,109	18,478	25,883	31,866
Other sciences, n.e.c.	15,882	28,799	25,324	25,566	22,797	29,600	41,466	46,561

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

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Table B-15. R&D expenditures at doctorate-granting institutions, by source of funds, science and engineering field, and control: fiscal years 1983, 1989, and 1990

[Dollars in thousands]

Source and field	Total			Public			Private		
	1983	1989	1990	1983	1989	1990	1983	1989	1990
Total	7,755,419	14,762,275	16,057,003	5,009,488	9,651,514	10,587,079	2,745,931	5,110,761	5,469,924
Source of funds									
Federal Government	4,905,224	8,836,691	9,453,757	2,799,834	5,079,319	5,486,278	2,105,390	3,757,372	3,967,479
State and local governments	613,446	1,202,546	1,298,659	560,911	1,081,156	1,167,064	52,535	121,390	131,595
Industry	380,486	977,729	1,114,503	238,774	622,510	722,198	141,712	355,219	392,305
Institutional funds	1,286,310	2,680,475	2,982,116	1,055,621	2,237,018	2,490,560	230,689	443,457	491,556
All other sources	569,953	1,064,834	1,207,968	354,348	631,511	720,979	215,605	433,323	486,989
Field									
Engineering, total	1,108,379	2,368,226	2,638,425	668,847	1,532,095	1,753,625	439,532	836,131	884,800
Aeronautical and astronautical	69,136	142,544	158,127	32,014	76,184	89,141	37,122	66,360	68,986
Chemical	90,982	183,624	204,413	58,534	111,172	132,786	32,448	72,452	71,627
Civil	124,436	246,813	285,164	99,189	194,902	231,423	25,247	51,911	53,741
Electrical	259,299	589,092	653,694	144,416	354,076	398,297	114,883	235,016	255,397
Mechanical	147,310	337,781	384,973	76,246	203,216	239,234	71,064	134,565	145,739
Metallurgical and materials 1/	NA	NA	273,818	NA	NA	199,973	NA	NA	73,845
Other, n.e.c.	417,216	868,372	678,236	258,448	592,545	462,771	158,768	275,827	215,465
All sciences, total	6,647,040	12,394,049	13,418,578	4,340,641	8,119,419	8,833,454	2,306,399	4,274,630	4,585,124
Physical sciences	880,342	1,601,481	1,736,378	505,134	985,649	1,070,882	375,208	615,832	665,496
Astronomy	72,714	136,571	165,415	52,877	95,735	113,562	19,837	40,836	51,853
Chemistry	323,392	584,346	623,795	202,711	375,923	400,416	120,681	208,423	223,379
Physics	410,546	760,517	816,633	220,006	446,335	483,440	190,540	314,182	333,193
Other, n.e.c.	73,690	120,047	130,535	29,540	67,656	73,464	44,150	52,391	57,071
Environmental sciences	600,646	959,434	1,013,979	429,811	700,311	759,644	170,835	259,123	254,335
Atmospheric	95,862	153,238	158,057	76,220	121,521	129,765	19,642	31,717	28,292
Earth sciences	210,550	318,663	347,106	150,854	228,079	250,540	59,696	90,584	96,566
Oceanography	220,552	346,189	363,756	161,241	260,324	286,815	59,311	85,865	76,941
Other, n.e.c.	73,682	141,344	145,060	41,496	90,387	92,524	32,186	50,957	52,536
Mathematical sciences	102,868	210,235	216,439	55,033	117,483	124,742	47,835	92,752	91,697
Computer sciences	184,507	460,482	494,418	78,543	198,729	229,180	105,964	261,753	265,238
Life sciences	4,257,899	7,988,817	8,666,523	2,822,369	5,256,543	5,685,813	1,435,530	2,732,274	2,980,710
Agricultural sciences	899,830	1,246,862	1,309,874	874,068	1,200,567	1,263,878	25,762	46,295	45,996
Biological sciences	1,394,072	2,577,521	2,791,534	838,141	1,604,660	1,737,531	555,931	972,861	1,054,003
Medical sciences	1,834,943	3,838,749	4,194,137	1,040,913	2,248,824	2,458,000	794,030	1,589,925	1,736,137
Other, n.e.c.	129,054	325,685	370,978	69,247	202,492	226,404	59,807	123,193	144,574
Psychology	131,863	227,299	245,018	88,506	151,922	162,538	43,357	75,377	82,480
Social sciences	327,085	619,320	686,246	236,198	444,025	508,898	90,887	175,295	177,348
Economics	94,979	185,875	199,356	72,747	135,956	148,629	22,232	49,919	50,727
Political science	52,828	102,066	110,110	36,491	59,941	70,735	16,337	42,125	39,375
Sociology	71,156	116,649	130,174	50,799	77,105	91,410	20,357	39,544	38,764
Other, n.e.c.	108,122	214,730	246,606	76,161	171,023	198,124	31,961	43,707	48,482
Other sciences, n.e.c.	161,830	326,981	359,577	125,047	264,757	291,757	36,783	62,224	67,820

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

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Table B-16. Federally financed R&D expenditures at doctorate-granting institutions, by science and engineering field and control: fiscal years 1983, 1989, and 1990

[Dollars in thousands]

Field	Total			Public			Private		
	1983	1989	1990	1983	1989	1990	1983	1989	1990
Total	4,905,224	8,836,691	9,453,757	2,799,834	5,079,319	5,486,278	2,105,390	3,757,372	3,967,479
Field									
Engineering, total	727,040	1,367,531	1,513,915	377,631	754,361	875,204	349,409	613,170	638,711
Aeronautical and astronautical	55,565	109,749	122,017	23,296	55,195	64,488	32,269	54,554	57,529
Chemical	52,471	91,815	99,044	31,184	46,452	55,851	21,287	45,363	43,193
Civil	62,326	103,871	118,464	44,548	73,533	87,242	17,778	30,338	31,222
Electrical	191,916	382,532	423,664	95,312	209,370	239,310	96,604	173,162	184,354
Mechanical	99,091	209,504	233,735	45,236	106,314	123,814	53,855	103,190	109,921
Metallurgical and materials 1/	NA	NA	141,976	NA	NA	95,803	NA	NA	46,173
Other, n.e.c.	265,671	470,060	375,015	138,055	263,497	208,696	127,616	206,563	166,319
All sciences, total	4,178,184	7,469,160	7,939,842	2,422,203	4,324,958	4,611,074	1,755,981	3,144,202	3,328,768
Physical sciences	687,141	1,167,233	1,261,808	366,525	647,362	701,595	320,616	519,871	560,213
Astronomy	49,439	87,422	108,805	36,486	55,140	68,082	12,953	32,282	40,723
Chemistry	240,476	406,998	428,016	144,497	246,719	256,265	95,979	160,279	171,751
Physics	337,731	588,323	635,159	165,948	308,899	338,031	171,783	279,424	297,128
Other, n.e.c.	59,495	84,490	89,828	19,594	36,604	39,217	39,901	47,886	50,611
Environmental sciences	416,015	625,370	651,714	274,986	408,253	438,798	141,029	217,117	212,916
Atmospheric	74,738	119,140	119,230	57,252	91,551	94,398	17,486	27,589	24,832
Earth sciences	131,357	184,087	201,642	84,534	108,939	120,010	46,823	75,148	81,632
Oceanography	170,292	256,879	259,000	118,404	179,497	190,381	51,888	77,382	68,619
Other, n.e.c.	39,628	65,264	71,842	14,796	28,266	34,009	24,832	36,998	37,833
Mathematical sciences	74,301	153,556	156,392	32,518	70,533	74,992	41,783	83,023	81,400
Computer sciences	137,689	313,675	329,922	45,261	100,330	111,775	92,428	213,345	218,147
Life sciences	2,551,668	4,719,621	5,007,314	1,494,618	2,751,240	2,892,412	1,057,050	1,968,381	2,114,902
Agricultural sciences	243,754	322,291	321,259	236,692	311,999	311,781	7,062	10,292	9,478
Biological sciences	968,499	1,696,979	1,800,810	546,055	957,390	1,001,901	422,444	739,589	798,909
Medical sciences	1,260,910	2,502,627	2,666,460	678,485	1,371,130	1,459,432	582,425	1,131,497	1,207,028
Other, n.e.c.	78,505	197,724	218,785	33,386	110,721	119,298	45,119	87,003	99,487
Psychology	87,149	148,318	157,839	56,067	92,992	98,403	31,082	55,326	59,436
Social sciences	139,332	205,895	219,950	88,357	140,586	160,945	50,975	65,309	59,005
Economics	36,687	53,543	53,370	25,940	40,747	43,243	10,747	12,796	10,127
Political science	19,368	25,308	24,665	11,281	12,486	13,659	8,087	12,822	11,006
Sociology	40,102	52,353	58,464	26,076	31,129	37,480	14,026	21,224	20,984
Other, n.e.c.	43,175	74,691	83,451	25,060	56,224	66,563	18,115	18,467	16,888
Other sciences, n.e.c.	84,889	135,492	154,903	63,871	113,662	132,154	21,018	21,830	22,749

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-17. Non-Federal R&D expenditures at doctorate-granting institutions, by source of funds, science and engineering field, and control: fiscal years 1983, 1989, and 1990

[Dollars in thousands]

Source and field	Total			Public			Private		
	1983	1989	1990	1983	1989	1990	1983	1989	1990
Total non-Federal	2,850,195	5,925,584	6,603,246	2,209,654	4,572,195	5,100,801	640,541	1,353,389	1,502,445
Source of funds									
State and local governments	613,446	1,202,546	1,298,659	560,911	1,081,156	1,167,064	52,535	121,390	131,595
Industry	380,486	977,729	1,114,503	238,774	622,510	722,198	141,712	355,219	392,305
Institutional funds	1,286,310	2,680,475	2,982,116	1,055,621	2,237,018	2,490,560	230,689	443,457	491,556
All other sources	569,953	1,064,834	1,207,968	354,348	631,511	720,979	215,605	433,323	486,989
Field									
Engineering, total	381,339	1,000,695	1,124,510	291,216	777,734	878,421	90,123	222,961	246,089
Aeronautical and astronautical	13,571	32,795	36,110	8,718	20,989	24,653	4,853	11,806	11,457
Chemical	38,511	91,809	105,369	27,350	64,720	76,935	11,161	27,089	28,434
Civil	62,110	142,942	166,700	54,641	121,369	144,181	7,469	21,573	22,519
Electrical	67,383	206,560	230,030	49,104	144,706	158,987	18,279	61,854	71,043
Mechanical	48,219	128,277	151,238	31,010	96,902	115,420	17,209	31,375	35,818
Metallurgical and materials 1/	NA	NA	131,842	NA	NA	104,170	NA	NA	27,672
Other, n.e.c.	151,545	398,312	303,221	120,393	329,048	254,075	31,152	69,264	49,146
All sciences, total	2,468,856	4,924,889	5,478,736	1,918,438	3,794,461	4,222,380	550,418	1,130,428	1,256,356
Physical sciences	193,201	434,248	474,570	138,609	338,287	369,287	54,592	95,961	105,283
Astronomy	23,275	49,149	56,610	16,391	40,595	45,480	6,884	8,554	11,130
Chemistry	82,916	177,348	195,779	58,214	129,204	144,151	24,702	48,144	51,628
Physics	72,815	172,194	181,474	54,058	137,436	145,409	18,757	34,758	36,065
Other, n.e.c.	14,195	35,557	40,707	9,946	31,052	34,247	4,249	4,505	6,460
Environmental sciences	184,631	334,064	362,265	154,825	292,058	320,846	29,806	42,006	41,419
Atmospheric	21,124	34,098	38,827	18,968	29,970	35,367	2,156	4,128	3,460
Earth sciences	79,193	134,576	145,464	66,320	119,140	130,530	12,873	15,436	14,934
Oceanography	50,260	89,310	104,756	42,837	80,827	96,434	7,423	8,483	8,322
Other, n.e.c.	34,054	76,080	73,218	26,700	62,121	58,515	7,354	13,959	14,703
Mathematical sciences	28,567	56,679	60,047	22,515	46,950	49,750	6,052	9,729	10,297
Computer sciences	46,818	146,807	164,496	33,282	98,399	117,405	13,536	48,408	47,091
Life sciences	1,706,231	3,269,196	3,659,209	1,327,751	2,505,303	2,793,401	378,480	763,893	865,808
Agricultural sciences	656,076	924,571	988,615	637,376	888,568	952,097	18,700	36,003	36,518
Biological sciences	425,573	880,542	990,724	292,086	647,270	735,630	133,487	233,272	255,094
Medical sciences	574,033	1,336,122	1,527,677	362,428	877,694	998,568	211,605	458,428	529,109
Other, n.e.c.	50,549	127,961	152,193	35,861	91,771	107,106	14,688	36,190	45,087
Psychology	44,714	78,981	87,179	32,439	58,930	64,135	12,275	20,051	23,044
Social sciences	187,753	413,425	466,296	147,841	303,439	347,953	39,912	109,986	118,343
Economics	58,292	132,332	145,986	46,807	95,209	105,386	11,485	37,123	40,600
Political science	33,460	76,758	85,445	25,210	47,455	57,076	8,250	29,303	28,369
Sociology	31,054	64,296	71,710	24,723	45,976	53,930	6,331	18,320	17,780
Other, n.e.c.	64,947	140,039	163,155	51,101	114,799	131,561	13,846	25,240	31,594
Other sciences, n.e.c.	76,941	191,489	204,674	61,176	151,095	159,603	15,765	40,394	45,071

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-18. R&D expenditures at historically black colleges and universities, by source of funds and science and engineering field: fiscal years 1983-90

[Dollars in thousands]

Source and field	1983	1984	1985	1986	1987	1988	1989	1990
Total	52,528	61,074	62,725	71,832	73,759	92,458	123,591	134,859
Source of funds								
Federal Government	44,785	54,130	57,725	60,665	61,230	75,625	100,973	111,394
State and local governments	1,712	826	1,150	1,163	2,528	4,475	6,883	7,588
Industry	647	809	1,371	1,746	1,555	3,162	3,666	4,979
Institutional funds	3,744	3,661	1,579	6,722	7,182	7,476	10,858	8,984
All other sources	1,640	1,648	900	1,536	1,264	1,720	1,211	1,914
Field								
Engineering, total	2,607	3,978	5,077	6,898	6,400	7,814	10,529	13,645
Aeronautical and astronautical	310	266	250	263	371	410	226	119
Chemical	41	94	140	220	184	607	660	1,014
Civil	416	627	191	134	906	1,340	1,198	1,022
Electrical	1,189	1,689	1,119	1,467	2,123	1,915	2,763	2,530
Mechanical	294	592	1,002	1,619	1,912	2,224	3,108	3,412
Metallurgical and materials 1/	NA	NA	NA	NA	NA	NA	NA	1,375
Other, n.e.c.	357	710	2,375	3,195	904	1,318	2,574	4,173
All sciences, total	49,921	57,096	57,648	64,934	67,359	84,644	113,062	121,214
Physical sciences	7,377	10,718	11,952	13,783	14,089	14,672	17,664	22,164
Astronomy	88	68	16	26	12	27	0	0
Chemistry	5,029	7,577	7,693	9,051	7,875	9,321	9,879	9,975
Physics	1,881	2,888	3,970	4,473	6,074	5,323	7,619	11,956
Other, n.e.c.	379	185	273	233	128	1	166	233
Environmental sciences	1,016	693	1,173	1,104	1,229	1,362	1,446	2,738
Atmospheric	34	22	21	0	0	3	388	625
Earth sciences	400	191	350	286	303	328	526	461
Oceanography	62	133	305	381	208	397	27	48
Other, n.e.c.	520	347	497	437	718	634	505	1,604
Mathematical sciences	829	986	974	1,501	371	311	688	905
Computer sciences	225	295	493	629	957	1,290	2,386	2,496
Life sciences	35,160	37,903	38,472	41,587	43,901	56,948	80,241	81,892
Agricultural sciences	17,080	18,911	18,156	18,960	18,495	22,100	34,060	33,895
Biological sciences	11,484	13,579	12,534	12,593	15,838	24,990	34,041	35,467
Medical sciences	3,126	2,194	7,089	9,215	8,514	8,998	11,024	11,765
Other, n.e.c.	3,470	3,219	693	819	1,054	860	1,116	765
Psychology	173	58	221	352	628	494	1,494	1,706
Social sciences	4,368	5,879	3,822	5,017	4,591	8,639	7,973	7,839
Economics	1,907	3,920	1,310	634	290	838	864	1,528
Political science	823	662	934	994	728	1,169	1,156	978
Sociology	916	919	955	999	675	2,088	1,658	2,064
Other, n.e.c.	722	378	623	2,390	2,898	4,544	4,295	3,269
Other sciences, n.e.c.	773	564	541	961	1,593	928	1,170	1,474

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-19. Federally financed R&D expenditures at historically black colleges and universities, by science and engineering field: fiscal years 1983-90

[Dollars in thousands]

Field	1983	1984	1985	1986	1987	1988	1989	1990
Total	44,785	54,130	57,725	60,665	61,230	75,625	100,973	111,394
Field								
Engineering, total	2,146	3,247	4,372	4,911	4,331	5,665	8,008	11,839
Aeronautical and astronautical	301	258	243	256	350	382	123	119
Chemical	30	84	140	158	123	554	586	747
Civil	393	577	184	130	585	811	880	647
Electrical	933	1,498	962	1,031	1,381	1,358	1,906	2,075
Mechanical	233	457	878	1,279	1,480	1,964	2,787	3,106
Metallurgical and materials 1/	NA	NA	NA	NA	NA	NA	NA	1,375
Other, n.e.c.	256	373	1,965	2,057	412	596	1,726	3,770
All sciences, total	42,639	50,883	53,353	55,754	56,899	69,960	92,965	99,555
Physical sciences	6,332	9,797	11,082	11,583	12,410	12,665	14,978	18,778
Astronomy	88	66	16	26	12	27	0	0
Chemistry	4,344	6,885	7,116	7,163	6,516	7,821	8,553	8,863
Physics	1,752	2,661	3,750	4,161	5,754	4,816	6,302	9,746
Other, n.e.c.	148	185	200	233	128	1	123	169
Environmental sciences	563	442	867	822	883	1,079	793	666
Atmospheric	26	17	19	0	0	3	129	105
Earth sciences	352	151	316	245	239	250	248	252
Oceanography	50	124	297	348	206	372	2	22
Other, n.e.c.	135	150	235	229	438	454	414	287
Mathematical sciences	284	412	941	1,012	329	255	446	633
Computer sciences	192	288	480	582	863	1,155	1,997	1,886
Life sciences	31,387	34,022	36,072	36,331	38,093	49,648	69,071	70,728
Agricultural sciences	16,106	17,534	16,959	17,739	16,731	20,991	30,336	29,818
Biological sciences	10,295	11,893	12,042	11,388	14,261	21,161	29,458	31,307
Medical sciences	2,466	1,804	6,409	6,431	6,065	6,641	8,902	9,338
Other, n.e.c.	2,520	2,791	662	773	1,036	855	375	265
Psychology	151	52	213	343	589	452	1,108	1,240
Social sciences	3,446	5,371	3,185	4,170	2,276	3,974	3,625	4,897
Economics	1,823	3,783	1,247	522	203	548	755	1,296
Political science	503	541	724	708	376	451	557	424
Sociology	642	890	790	788	188	214	427	632
Other, n.e.c.	478	157	424	2,152	1,509	2,761	1,886	2,545
Other sciences, n.e.c.	284	499	513	911	1,456	732	947	727

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-20. Non-Federal R&D expenditures at historically black colleges and universities, by source of funds and science and engineering field: fiscal years 1983-90

(Dollars in thousands)

Source and field	1983	1984	1985	1986	1987	1988	1989	1990
Total non-Federal	7,743	6,944	5,000	11,167	12,529	16,833	22,618	23,465
Source of funds								
State and local governments	1,712	826	1,150	1,163	2,528	4,475	6,883	7,588
Industry	647	809	1,371	1,746	1,555	3,162	3,666	4,979
Institutional funds	3,744	3,661	1,579	6,722	7,182	7,476	10,858	8,984
All other sources	1,640	1,648	900	1,536	1,264	1,720	1,211	1,914
Field								
Engineering, total	461	731	705	1,987	2,069	2,149	2,521	1,806
Aeronautical and astronautical	9	8	7	7	21	28	103	0
Chemical	11	10	0	62	61	53	74	267
Civil	23	50	7	4	321	529	318	375
Electrical	256	191	157	436	742	557	857	455
Mechanical	61	135	124	340	432	260	321	306
Metallurgical and materials 1/	NA	NA	NA	NA	NA	NA	NA	0
Other, n.e.c.	101	337	410	1,138	492	722	848	403
All sciences, total	7,282	6,213	4,295	9,180	10,460	14,684	20,097	21,659
Physical sciences	1,045	921	870	2,200	1,679	2,007	2,686	3,386
Astronomy	0	2	0	0	0	0	0	0
Chemistry	685	692	577	1,888	1,359	1,500	1,326	1,112
Physics	129	227	220	312	320	507	1,317	2,210
Other, n.e.c.	231	0	73	0	0	0	43	64
Environmental sciences	453	251	306	282	346	283	653	2,072
Atmospheric	8	5	2	0	0	0	259	520
Earth sciences	48	40	34	41	64	78	278	209
Oceanography	12	9	8	33	2	25	25	26
Other, n.e.c.	385	197	262	208	280	180	91	1,317
Mathematical sciences	545	574	33	489	42	56	242	272
Computer sciences	33	7	13	47	94	135	389	610
Life sciences	3,773	3,881	2,400	5,256	5,808	7,300	11,170	11,164
Agricultural sciences	974	1,377	1,197	1,221	1,764	1,109	3,724	4,077
Biological sciences	1,189	1,686	492	1,205	1,577	3,829	4,583	4,160
Medical sciences	660	390	680	2,784	2,449	2,357	2,122	2,427
Other, n.e.c.	950	428	31	46	18	5	741	500
Psychology	22	6	8	9	39	42	386	466
Social sciences	922	508	637	847	2,315	4,665	4,348	2,942
Economics	84	137	63	112	87	290	109	232
Political science	320	121	210	286	352	718	599	554
Sociology	274	29	165	211	487	1,874	1,231	1,432
Other, n.e.c.	244	221	199	238	1,389	1,783	2,409	724
Other sciences, n.e.c.	489	65	28	50	137	196	223	747

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-21. R&D expenditures at universities and colleges, by geographic division and source: fiscal year 1990

[Dollars in millions]

Division	Total	Federal	Non-Federal
Total	16,325	9,611	6,714
New England	1,430	991	439
Middle Atlantic	2,596	1,588	1,007
East North Central	2,252	1,240	1,012
West North Central	1,080	519	562
South Atlantic	3,005	1,807	1,197
East South Central	676	365	311
West South Central	1,543	677	866
Mountain	982	574	408
Pacific	2,711	1,822	889
Outlying Areas	49	27	22

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-22. R&D expenditures at doctorate-granting institutions, by geographic division, State, and source of funds: fiscal year 1990

[Dollars in thousands]

Division and State	Total	Federal Government	State and local governments	Industry	Institutional funds	All other sources
Total	16,057,003	9,453,757	1,298,659	1,114,503	2,982,116	1,207,968
New England	1,418,016	981,113	31,744	115,756	157,522	131,881
Connecticut	298,076	190,388	5,262	13,402	64,344	24,680
Maine	23,605	9,046	908	4,663	8,253	735
Massachusetts	898,808	649,104	14,081	86,125	53,644	95,854
New Hampshire	69,731	44,590	3,985	3,715	11,500	5,941
Rhode Island	82,634	57,430	5,119	4,378	13,237	2,470
Vermont	45,162	30,555	2,389	3,473	6,544	2,201
Middle Atlantic	2,560,015	1,567,920	152,948	194,545	400,094	244,508
New Jersey	319,797	135,078	46,278	17,528	96,322	24,591
New York	1,410,700	917,748	75,518	77,952	177,798	161,684
Pennsylvania	829,518	515,094	31,152	99,065	125,974	58,233
East North Central	2,236,182	1,233,011	199,541	161,373	453,549	188,708
Illinois	647,863	352,417	37,911	44,148	164,202	49,185
Indiana	240,696	134,953	19,449	18,165	52,059	16,070
Michigan	527,070	276,078	36,747	44,694	128,244	41,307
Ohio	457,189	260,537	46,349	37,385	61,520	51,398
Wisconsin	363,364	209,026	59,085	16,981	47,524	30,748
West North Central	1,069,658	514,999	155,745	80,435	246,810	71,669
Iowa	232,147	113,268	29,500	12,354	67,301	9,724
Kansas	114,651	43,478	25,523	7,613	33,491	4,546
Minnesota	292,046	143,810	47,437	18,086	53,399	29,314
Missouri	281,133	152,398	18,469	28,082	59,494	22,690
Nebraska	105,373	34,356	27,976	11,075	28,134	3,832
North Dakota	29,966	20,815	1,061	2,845	4,019	1,226
South Dakota	14,342	6,874	5,779	380	972	337
South Atlantic	2,955,904	1,776,382	289,181	212,193	547,989	130,159
Delaware	40,119	17,588	3,139	4,397	11,751	3,244
District of Columbia	112,146	86,292	465	8,017	10,539	6,833
Florida	433,413	223,232	33,305	28,440	122,097	26,339
Georgia	445,011	212,443	42,638	36,990	142,197	10,743
Maryland	977,593	724,468	71,426	42,044	108,922	30,733
North Carolina	441,860	276,795	64,923	43,372	40,761	16,009
South Carolina	137,269	45,718	17,384	12,931	50,859	10,377
Virginia	321,547	170,128	54,703	25,965	46,627	24,124
West Virginia	46,946	19,718	1,198	10,037	14,236	1,757
East South Central	647,786	340,197	83,894	45,954	132,614	45,127
Alabama	239,556	124,648	25,752	18,662	50,803	19,691
Kentucky	90,880	38,249	6,684	8,123	33,258	4,566
Mississippi	85,229	40,343	20,745	8,171	9,458	6,512
Tennessee	232,121	136,957	30,713	10,998	39,095	14,358
West South Central	1,510,365	659,763	193,840	98,196	390,884	167,682
Arkansas	48,861	17,485	11,826	4,064	12,451	3,035
Louisiana	207,038	82,769	43,673	10,168	55,010	15,418
Oklahoma	130,650	37,020	7,665	6,872	70,398	8,695
Texas	1,123,816	522,489	130,676	77,092	253,025	140,534
Mountain	981,830	574,380	71,295	77,973	203,386	54,796
Arizona	260,187	122,259	7,318	18,066	97,013	15,531
Colorado	249,958	179,978	11,637	15,992	22,465	19,886
Idaho	36,570	14,361	8,156	4,206	9,596	251
Montana	34,980	12,520	7,885	4,266	10,147	162
Nevada	38,301	20,689	2,418	4,556	9,201	1,437
New Mexico	151,927	85,747	14,776	21,509	19,399	10,496
Utah	187,076	126,619	17,049	7,377	29,237	6,794
Wyoming	22,831	12,207	2,056	2,001	6,328	239
Pacific	2,633,176	1,781,579	113,091	127,762	439,260	171,484
Alaska	65,571	31,896	2,205	4,100	23,636	3,734
California	2,007,361	1,369,315	51,357	91,001	355,615	140,073
Hawaii	76,525	42,665	27,487	1,585	3,568	1,220
Oregon	171,550	107,466	22,568	6,338	19,013	16,165
Washington	312,169	230,237	9,474	24,738	37,428	10,292
Outlying Areas	44,071	24,413	7,380	316	10,008	1,954

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-23. R&D expenditures at doctorate-granting institutions, by geographic division and State: fiscal years 1983-90

[Dollars in thousands]

Division and State	1983	1984	1985	1986	1987	1988	1989	1990
Total	7,755,419	8,483,497	9,544,538	10,769,576	11,997,969	13,286,901	14,762,275	16,057,003
New England	784,016	851,745	948,319	1,039,272	1,115,314	1,234,706	1,356,621	1,418,016
Connecticut	164,350	176,843	194,928	212,815	230,790	254,958	284,410	298,076
Maine	19,454	17,107	20,621	19,315	16,952	17,341	19,974	23,605
Massachusetts	505,040	554,387	608,887	673,378	719,581	790,391	867,521	898,808
New Hampshire	30,301	31,865	39,680	44,330	50,928	57,658	62,172	69,731
Rhode Island	46,066	49,275	56,597	59,735	65,516	77,543	79,801	82,634
Vermont	18,805	22,268	27,606	29,699	31,547	36,815	42,743	45,162
Middle Atlantic	1,245,671	1,346,571	1,539,657	1,765,861	1,954,919	2,165,589	2,376,356	2,560,015
New Jersey	114,411	122,573	142,075	181,578	215,580	244,307	283,087	319,797
New York	763,894	822,091	938,944	1,037,116	1,127,404	1,246,170	1,332,139	1,410,700
Pennsylvania	367,366	401,907	458,638	547,167	611,935	675,112	761,130	829,518
East North Central	1,099,084	1,229,483	1,353,557	1,509,138	1,709,481	1,897,912	2,081,007	2,236,182
Illinois	312,037	357,285	392,793	438,991	498,221	546,300	602,558	647,863
Indiana	133,671	144,994	158,983	176,374	188,086	211,813	227,266	240,696
Michigan	249,850	283,643	301,235	341,775	396,420	438,420	487,023	527,070
Ohio	209,839	231,339	261,445	287,601	329,343	381,895	427,345	457,189
Wisconsin	193,687	212,222	239,101	264,397	297,411	319,484	336,815	363,364
West North Central	559,845	589,042	646,122	738,621	801,409	869,527	965,122	1,069,658
Iowa	119,646	119,272	132,251	146,312	157,539	181,481	209,327	232,147
Kansas	63,655	71,348	80,144	90,579	93,931	99,655	107,856	114,651
Minnesota	151,441	158,223	173,322	201,743	222,381	236,115	258,614	292,046
Missouri	135,668	150,414	160,985	185,935	205,597	232,148	255,009	281,133
Nebraska	53,753	53,801	60,612	71,239	74,654	83,357	93,916	105,373
North Dakota	25,269	27,459	29,649	31,840	35,912	24,444	27,951	29,966
South Dakota	10,413	8,525	9,159	10,973	11,395	12,327	12,449	14,342
South Atlantic	1,219,029	1,380,470	1,578,252	1,808,052	2,092,596	2,327,345	2,720,699	2,955,904
Delaware	19,080	21,343	23,605	28,798	31,681	32,023	37,194	40,119
District of Columbia	55,409	62,212	64,692	73,170	85,470	94,851	111,325	112,146
Florida	162,153	184,723	203,385	228,077	278,847	298,933	385,556	433,613
Georgia	194,293	217,197	231,068	290,291	329,937	371,360	417,287	445,011
Maryland	414,904	472,226	540,242	605,017	722,393	795,718	921,848	977,593
North Carolina	180,364	208,582	254,370	281,929	313,819	366,995	419,848	441,860
South Carolina	52,621	59,526	68,768	86,603	95,811	102,160	120,137	137,269
Virginia	120,567	134,480	169,738	189,876	207,934	234,887	268,136	321,847
West Virginia	19,638	20,181	22,384	24,291	26,704	30,418	39,368	46,946
East South Central	252,102	282,128	328,033	392,620	443,821	520,939	584,399	647,786
Alabama	70,051	86,542	104,137	133,410	152,925	180,809	209,564	239,556
Kentucky	49,498	52,647	53,790	68,552	78,008	91,948	83,998	90,880
Mississippi	47,534	49,371	52,618	59,223	57,622	63,647	75,175	85,229
Tennessee	85,019	93,568	117,488	131,435	155,266	184,535	215,662	232,121
West South Central	721,740	779,166	884,827	980,836	1,092,722	1,208,783	1,350,929	1,510,365
Arkansas	27,315	26,616	30,051	35,379	35,529	37,955	43,676	48,861
Louisiana	95,951	103,656	125,478	134,200	148,563	165,623	180,032	207,038
Oklahoma	87,072	91,386	96,407	89,020	99,363	113,931	113,279	130,650
Texas	511,402	557,508	632,891	722,237	809,267	891,274	1,013,942	1,123,816
Mountain	500,353	524,510	583,082	661,287	719,575	796,533	874,200	981,830
Arizona	112,660	118,818	136,835	160,678	181,263	199,178	223,531	260,187
Colorado	139,233	149,494	158,785	175,760	185,699	206,287	226,555	249,958
Idaho	17,751	19,626	20,861	23,729	24,779	30,789	33,191	36,570
Montana	22,952	24,198	24,327	26,438	29,425	32,069	32,450	34,980
Nevada	21,504	17,513	20,499	24,535	28,070	32,665	34,146	38,301
New Mexico	82,333	84,429	104,988	118,569	132,145	129,087	136,189	151,927
Utah	88,801	94,697	100,712	112,915	120,878	146,029	164,828	187,076
Wyoming	15,119	15,735	16,075	18,663	17,316	20,429	23,310	22,831
Pacific	1,347,583	1,471,899	1,651,495	1,838,812	2,030,817	2,226,572	2,411,001	2,633,176
Alaska	37,736	40,160	42,584	45,008	47,432	49,856	56,701	65,571
California	998,086	1,092,604	1,230,895	1,379,262	1,554,787	1,722,075	1,845,555	2,007,361
Hawaii	45,401	51,051	54,025	57,383	57,345	64,278	70,733	76,525
Oregon	95,959	102,833	114,151	124,195	135,326	148,309	161,127	171,550
Washington	170,401	185,251	209,840	232,964	235,927	242,054	276,885	312,169
Outlying Areas	25,996	28,483	31,194	35,077	37,315	38,995	41,941	44,071

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

BEST COPY AVAILABLE

Table B-24. Federally financed R&D expenditures at doctorate-granting institutions, by geographic division and State: fiscal years 1983-90

[Dollars in thousands]

Division and State	1983	1984	1985	1986	1987	1988	1989	1990
Total	4,905,224	5,336,924	5,962,822	6,600,405	7,235,732	8,070,152	8,836,691	9,453,757
New England	596,973	643,579	702,600	754,047	808,738	884,476	944,086	981,113
Connecticut	123,925	133,433	139,748	145,583	155,717	173,912	187,212	190,388
Maine	8,313	8,444	10,653	8,584	7,787	7,048	8,288	9,046
Massachusetts	392,141	422,571	463,575	504,837	536,999	580,783	621,789	649,104
New Hampshire	20,276	21,824	26,445	29,929	34,633	39,077	41,816	44,590
Rhode Island	39,468	42,375	43,222	45,266	51,313	56,117	56,446	57,430
Vermont	12,850	14,932	18,957	19,848	22,289	25,539	28,535	30,555
Middle Atlantic	835,857	903,402	1,017,154	1,138,986	1,251,925	1,366,830	1,454,015	1,567,920
New Jersey	60,452	66,158	75,902	83,313	96,048	106,630	118,260	135,078
New York	525,599	564,892	638,759	713,836	769,965	833,785	866,762	917,748
Pennsylvania	249,806	272,352	302,493	341,837	385,912	427,415	468,993	515,094
East North Central	680,395	747,553	814,086	889,256	976,900	1,095,494	1,178,005	1,233,011
Illinois	204,722	223,090	240,113	258,845	293,929	315,809	338,082	352,417
Indiana	83,705	86,470	97,004	106,979	111,413	130,777	136,040	134,953
Michigan	145,751	165,661	175,168	188,844	207,709	242,766	263,506	276,078
Ohio	131,775	145,823	161,055	177,596	193,614	217,622	243,559	260,337
Wisconsin	114,442	126,509	140,746	156,992	170,235	188,520	197,818	209,026
West North Central	279,424	291,922	314,104	354,938	390,314	431,823	482,594	514,999
Iowa	61,524	62,252	64,133	69,932	76,915	87,855	103,360	113,268
Kansas	26,340	29,156	31,088	35,552	37,386	42,402	44,292	43,478
Minnesota	79,637	79,489	87,776	100,308	109,003	119,789	133,980	143,810
Missouri	81,146	86,759	92,544	102,592	113,146	124,552	136,677	152,398
Nebraska	17,133	19,702	24,671	28,703	33,350	35,097	36,823	34,356
North Dakota	9,424	10,526	11,628	12,729	15,385	16,285	19,396	20,815
South Dakota	4,220	4,038	2,264	5,122	5,129	5,843	6,166	6,874
South Atlantic	811,636	908,338	1,014,345	1,145,399	1,290,980	1,448,001	1,678,141	1,776,382
Delaware	9,583	10,811	10,626	12,578	13,662	13,708	17,083	17,588
District of Columbia	41,752	47,851	49,697	53,933	62,968	70,850	84,274	86,292
Florida	84,994	91,345	100,347	116,349	129,474	151,012	200,742	223,533
Georgia	101,467	111,312	116,570	136,997	151,025	180,102	204,673	212,443
Maryland	338,402	393,938	440,431	495,742	575,176	617,993	705,963	724,468
North Carolina	124,260	134,176	156,591	177,301	195,177	229,191	261,896	276,792
South Carolina	23,711	24,040	29,857	31,963	34,350	39,759	41,627	45,718
Virginia	77,255	83,668	97,874	107,005	116,137	129,450	144,544	170,128
West Virginia	10,212	10,997	12,352	13,531	13,011	15,936	17,339	19,718
East South Central	122,472	139,945	159,413	184,372	213,776	258,482	304,250	340,197
Alabama	41,277	50,098	60,558	69,993	85,382	104,259	114,892	124,648
Kentucky	18,080	19,317	19,241	24,963	30,778	33,166	38,993	38,249
Mississippi	14,606	17,815	19,053	21,878	22,492	25,357	32,123	40,343
Tennessee	48,509	52,715	60,561	67,538	75,124	95,704	124,272	136,957
West South Central	323,145	345,134	412,922	452,919	495,789	561,514	604,827	659,763
Arkansas	11,233	10,004	11,551	12,385	12,257	14,039	14,213	17,485
Louisiana	30,987	34,164	41,677	47,497	54,367	60,963	69,219	82,769
Oklahoma	25,204	25,965	30,420	24,290	25,880	31,391	33,067	37,020
Texas	255,721	275,001	329,274	368,747	403,285	455,121	488,328	522,489
Mountain	304,755	317,142	358,505	398,030	417,796	472,406	513,796	574,380
Arizona	55,452	57,183	65,463	76,615	80,955	94,630	105,367	122,259
Colorado	95,783	99,713	112,167	125,715	136,003	152,091	167,043	179,978
Idaho	11,726	12,987	13,963	9,328	8,988	11,196	12,585	14,361
Montana	8,157	7,363	9,163	9,082	11,299	13,635	11,552	12,320
Nevada	9,389	10,706	11,614	13,265	14,572	18,077	17,615	20,689
New Mexico	58,139	57,154	68,166	76,334	75,925	79,835	76,777	85,747
Utah	59,518	64,336	70,517	78,370	81,355	97,806	109,053	126,619
Wyoming	6,591	7,700	7,452	9,321	8,701	11,136	13,804	12,207
Pacific	937,272	1,025,517	1,153,973	1,264,346	1,370,484	1,528,784	1,652,859	1,781,579
Alaska	13,859	15,775	17,691	19,607	21,523	23,441	26,659	31,896
California	716,548	779,050	876,737	973,969	1,066,099	1,195,035	1,281,335	1,369,315
Hawaii	27,633	32,701	34,886	35,322	34,472	38,560	40,574	42,665
Oregon	58,157	62,298	68,262	73,360	81,932	90,126	99,141	107,466
Washington	121,075	132,693	156,397	162,088	166,458	181,622	205,150	230,237
Outlying Areas	13,295	14,392	15,720	18,112	19,030	22,342	24,118	24,413

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-25. State and local government-financed R&D expenditures at doctorate-granting institutions, by geographic division and State: fiscal years 1983-1990

[Dollars in thousands]

Division and State	1983	1984	1985	1986	1987	1988	1989	1990
Total	613,446	677,504	740,262	901,143	1,006,898	1,088,892	1,202,546	1,298,659
New England	21,420	15,582	16,936	26,436	27,186	32,948	32,965	31,744
Connecticut	4,131	3,790	3,602	4,361	2,495	4,013	5,430	5,262
Maine	3,460	1,587	1,246	796	315	543	584	908
Massachusetts	7,318	5,279	7,001	14,419	18,390	20,672	18,529	14,081
New Hampshire	1,959	2,445	2,680	3,384	2,045	2,536	2,646	3,985
Rhode Island	3,227	947	833	1,547	2,136	2,886	3,276	5,119
Vermont	1,325	1,534	1,574	1,929	1,805	2,298	2,500	2,389
Middle Atlantic	46,919	55,811	73,079	95,129	115,009	123,986	146,507	152,948
New Jersey	10,305	11,297	16,637	28,093	37,489	36,815	45,150	46,278
New York	32,054	35,485	42,731	47,625	53,961	61,593	69,072	75,518
Pennsylvania	4,560	9,029	13,711	19,411	23,559	25,578	32,285	31,152
East North Central	100,819	109,721	115,799	139,210	161,540	181,083	192,219	199,541
Illinois	19,785	21,008	23,793	29,068	30,610	29,329	33,881	37,911
Indiana	10,509	10,928	12,155	17,478	15,772	16,813	18,911	19,449
Michigan	18,762	23,458	23,940	25,976	30,320	33,471	35,983	36,747
Ohio	14,966	15,716	15,304	20,650	35,038	47,437	48,072	46,349
Wisconsin	36,797	38,611	40,607	46,038	49,800	54,033	55,372	59,085
West North Central	74,510	87,919	97,812	110,056	120,405	117,298	134,843	155,745
Iowa	17,580	17,232	13,387	13,655	16,653	20,495	24,839	29,500
Kansas	17,045	18,104	21,031	19,721	20,031	21,092	24,159	25,523
Minnesota	15,576	16,123	19,439	31,819	37,287	39,297	42,542	47,437
Missouri	9,679	9,242	10,758	11,397	11,753	13,050	14,509	18,469
Nebraska	2,057	14,529	14,685	16,012	16,161	17,569	22,971	27,976
North Dakota	12,093	12,291	12,835	13,254	13,731	713	918	1,061
South Dakota	480	398	5,677	4,198	4,789	5,082	4,905	5,779
South Atlantic	96,135	120,724	152,140	181,817	212,416	235,759	261,789	289,181
Delaware	837	348	767	1,645	1,995	2,456	2,603	3,139
District of Columbia	274	233	353	289	484	264	480	465
Florida	7,212	7,264	7,639	9,994	13,889	19,498	25,655	33,305
Georgia	3,176	22,041	24,394	33,372	39,621	40,161	40,141	42,638
Maryland	28,176	28,957	33,898	38,511	50,198	56,470	63,644	71,426
North Carolina	32,131	33,502	48,193	48,926	54,897	58,048	61,259	64,923
South Carolina	8,988	10,558	11,057	14,598	14,061	15,594	17,421	17,384
Virginia	14,554	16,617	24,512	33,695	36,400	42,198	49,331	54,703
West Virginia	787	1,204	1,327	787	871	1,070	1,255	1,198
East South Central	35,634	50,324	62,117	78,739	73,146	82,824	78,309	83,894
Alabama	10,526	9,972	15,461	22,412	16,449	21,263	18,339	25,752
Kentucky	13,155	12,510	11,278	11,588	10,841	13,169	7,113	6,684
Mississippi	1,177	16,399	16,730	21,375	16,667	18,992	20,486	20,745
Tennessee	10,776	11,443	18,648	23,364	29,189	29,400	32,371	30,713
West South Central	95,533	107,258	109,800	131,001	136,685	152,372	181,811	193,840
Arkansas	6,366	6,600	7,787	9,390	9,352	9,701	12,186	11,826
Louisiana	29,236	30,355	31,592	32,218	31,850	38,556	40,758	43,673
Oklahoma	2,761	3,423	2,788	2,663	3,463	4,670	5,062	7,665
Texas	57,170	66,880	67,633	86,730	92,020	99,445	123,805	130,676
Mountain	57,789	46,668	49,084	58,849	66,861	64,662	69,799	71,295
Arizona	22,313	6,192	7,671	8,024	8,965	5,486	7,949	7,318
Colorado	8,202	9,230	6,301	6,762	8,771	9,334	10,679	11,637
Idaho	1,882	2,093	1,885	6,187	8,314	10,507	8,112	8,156
Montana	6,354	8,463	6,726	7,719	7,325	6,649	7,919	7,885
Nevada	702	319	1,103	793	1,037	2,321	1,806	2,418
New Mexico	8,740	10,537	14,928	17,331	17,908	13,912	14,612	14,776
Utah	9,056	9,509	9,613	10,869	13,412	15,290	17,183	17,049
Wyoming	540	325	857	1,164	1,129	1,163	1,539	2,056
Pacific	76,988	74,945	54,088	69,645	83,092	89,471	97,242	113,091
Alaska	4,450	3,054	3,117	3,182	2,999	1,847	2,101	2,205
California	18,588	15,792	15,260	23,762	36,570	41,429	43,459	51,357
Hawaii	15,441	15,715	16,296	18,771	19,317	21,469	24,759	27,487
Oregon	14,518	15,551	16,928	18,423	18,645	19,399	20,860	22,568
Washington	23,991	24,833	2,487	5,507	5,561	5,327	6,063	9,474
Outlying Areas	7,699	8,552	9,407	10,261	10,558	8,489	7,062	7,380

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

BEST COPY AVAILABLE

Table B-26. Industry-financed R&D expenditures at doctorate-granting institutions, by geographic division and State: fiscal years 1983-1990

(Dollars in thousands)

Division and State	1983	1984	1985	1986	1987	1988	1989	1990
Total	380,486	465,818	549,842	687,782	776,507	856,855	977,729	1,114,503
New England	41,802	56,117	66,590	74,813	86,493	96,433	107,101	115,756
Connecticut	3,059	5,177	6,307	5,892	9,298	9,974	11,630	13,402
Maine	1,404	1,320	1,559	2,856	2,051	2,823	4,002	4,663
Massachusetts	33,274	43,200	51,182	56,556	64,806	69,455	78,729	86,155
New Hampshire	573	1,063	1,554	1,578	2,081	2,397	2,951	3,715
Rhode Island	1,327	2,227	3,375	4,600	5,380	8,645	6,305	4,378
Vermont	1,665	2,130	2,613	3,331	2,877	3,139	3,486	3,473
Middle Atlantic	70,980	87,979	102,975	129,780	141,652	155,846	178,936	194,545
New Jersey	3,756	5,242	6,108	9,722	11,910	14,371	16,595	17,528
New York	34,043	42,612	48,818	58,475	63,496	63,263	70,634	77,955
Pennsylvania	33,181	40,125	48,049	61,583	66,246	78,212	91,707	99,065
East North Central	52,955	60,017	76,678	85,000	99,841	112,578	147,578	161,373
Illinois	11,597	11,654	16,141	19,692	23,791	29,173	38,990	44,148
Indiana	13,010	13,588	14,884	14,967	17,203	16,244	18,419	18,165
Michigan	9,415	13,548	19,376	21,165	25,136	26,063	36,310	42,694
Ohio	12,980	14,159	17,048	18,916	22,265	26,940	37,591	37,385
Wisconsin	5,953	7,068	9,229	10,260	11,446	14,158	16,268	16,981
West North Central	25,398	32,856	37,437	47,238	52,745	61,172	69,373	80,435
Iowa	4,447	4,713	4,687	4,749	6,212	9,488	14,711	12,354
Kansas	2,088	2,167	2,492	3,798	5,433	5,648	5,187	5,613
Minnesota	5,962	8,053	8,135	11,157	11,056	10,670	13,389	18,086
Missouri	8,570	12,162	15,587	18,691	19,355	23,494	25,151	28,092
Nebraska	2,611	1,335	3,622	2,338	6,669	8,594	9,098	11,075
North Dakota	1,073	2,052	2,296	3,072	3,578	2,742	2,521	2,845
South Dakota	647	374	618	433	472	536	316	380
South Atlantic	69,062	84,063	100,928	118,269	134,664	156,992	178,374	212,193
Delaware	3,075	2,752	2,809	3,551	3,659	3,558	4,073	4,397
District of Columbia	1,455	3,026	4,397	3,258	4,192	6,504	7,924	8,017
Florida	10,039	12,652	18,525	20,219	20,334	18,019	20,660	28,440
Georgia	20,799	23,997	26,173	30,545	34,114	34,391	35,335	36,990
Maryland	11,426	13,260	14,907	18,536	25,577	28,750	35,185	43,044
North Carolina	8,488	10,770	17,062	21,564	23,825	32,628	41,375	44,372
South Carolina	3,222	3,661	4,385	5,908	8,184	8,693	7,906	12,931
Virginia	9,957	11,260	12,076	13,484	15,895	19,672	21,953	25,965
West Virginia	601	685	594	904	884	777	3,963	10,037
East South Central	16,296	20,929	23,988	30,804	32,766	37,170	39,580	45,954
Alabama	5,773	7,771	8,915	10,923	10,916	12,703	16,242	18,662
Kentucky	3,329	4,378	4,768	8,173	6,715	4,591	7,516	8,123
Mississippi	1,922	2,184	2,687	2,995	4,170	4,909	5,334	8,171
Tennessee	5,272	6,596	7,618	8,713	10,965	14,967	10,488	10,998
West South Central	37,708	41,054	51,957	55,507	64,230	75,470	81,862	98,196
Arkansas	1,746	1,593	2,372	3,068	2,829	3,865	4,123	4,064
Louisiana	5,105	7,105	6,048	6,253	7,154	8,088	8,193	10,168
Oklahoma	5,508	5,980	6,541	7,083	7,078	7,855	5,667	6,872
Texas	25,349	26,376	36,996	39,103	47,169	55,662	63,879	77,092
Mountain	37,733	46,605	51,440	53,961	63,329	59,438	61,891	77,973
Arizona	9,555	9,635	11,985	14,411	17,456	15,196	12,500	18,066
Colorado	11,388	12,543	12,305	8,766	8,728	11,044	14,381	15,992
Idaho	2,260	2,584	2,826	2,787	2,899	3,654	4,199	4,206
Montana	1,438	2,255	2,066	2,717	3,197	3,129	3,242	4,266
Nevada	2,770	2,719	2,715	3,397	3,976	3,563	4,098	4,556
New Mexico	4,346	10,383	12,650	14,770	20,123	15,837	16,433	21,509
Utah	4,236	4,752	5,072	5,334	5,734	5,215	5,503	7,377
Wyoming	1,740	1,734	1,821	1,779	1,216	1,800	1,535	2,001
Pacific	28,550	36,193	37,836	92,355	100,787	101,569	112,812	127,762
Alaska	3,143	2,819	2,878	2,936	3,024	2,672	3,039	4,100
California	11,678	18,866	18,174	63,174	72,260	73,973	82,732	91,001
Hawaii	723	380	250	508	261	378	799	1,285
Oregon	5,313	5,746	6,182	6,983	4,059	4,631	4,849	6,338
Washington	7,693	8,382	10,352	18,754	21,183	19,915	21,393	24,738
Outlying Areas	2	5	13	55	0	187	222	316

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-27. Institutionally financed R&D expenditures at doctorate-granting institutions, by geographic division and State: fiscal years 1983-1990

[Dollars in thousands]

Division and State	1983	1984	1985	1986	1987	1988	1989	1990
Total	1,286,310	1,396,699	1,605,039	1,854,909	2,157,689	2,340,821	2,680,475	2,982,116
New England	58,336	70,314	78,800	96,768	100,028	111,972	148,711	157,522
Connecticut	20,814	26,571	28,271	41,445	39,761	43,689	56,999	64,344
Maine	3,590	4,684	4,739	5,075	5,740	6,214	6,567	8,253
Massachusetts	23,991	29,717	30,637	35,644	37,790	40,865	58,681	53,644
New Hampshire	4,281	4,651	6,399	6,027	8,114	9,556	9,333	11,500
Rhode Island	1,444	2,226	5,261	5,202	5,293	7,294	11,646	13,237
Vermont	2,216	2,865	3,476	3,375	3,330	4,354	5,485	6,544
Middle Atlantic	171,873	162,615	199,592	236,009	269,188	311,259	364,426	400,094
New Jersey	31,644	30,370	32,665	47,636	55,142	68,835	82,798	96,322
New York	91,519	85,344	113,442	110,287	120,647	150,976	172,130	177,798
Pennsylvania	48,710	46,901	53,485	78,086	85,399	91,448	109,498	125,974
East North Central	186,581	231,545	260,510	290,267	348,441	374,596	415,689	453,549
Illinois	55,788	81,356	90,090	100,387	117,826	134,015	150,694	164,202
Indiana	20,682	28,533	28,640	31,130	37,627	39,938	43,658	52,059
Michigan	57,658	63,930	67,925	81,518	103,782	104,181	115,965	128,244
Ohio	29,191	32,144	42,596	43,712	47,189	54,761	62,068	61,520
Wisconsin	23,262	25,582	31,259	33,520	42,017	41,701	43,304	47,524
West North Central	145,469	138,107	152,914	175,787	184,268	201,686	220,186	246,810
Iowa	31,141	29,680	42,729	47,613	49,668	55,980	60,796	67,301
Kansas	14,922	18,277	21,482	27,639	27,607	27,567	30,204	33,491
Minnesota	36,453	38,235	38,231	37,251	39,371	37,261	43,713	53,399
Missouri	27,163	31,683	31,824	41,496	49,579	57,777	59,615	59,494
Nebraska	28,863	14,594	15,848	18,742	14,913	18,757	20,905	28,134
North Dakota	2,496	2,674	2,573	2,305	2,391	3,705	4,113	4,019
South Dakota	4,431	3,364	227	741	739	639	840	972
South Atlantic	197,854	220,086	250,967	300,454	378,249	404,246	492,946	547,989
Delaware	4,502	6,386	8,296	9,349	10,117	9,894	11,125	11,751
District of Columbia	5,719	5,260	5,648	10,761	11,642	11,614	13,022	10,539
Florida	49,082	59,751	65,626	68,512	98,188	93,228	112,906	122,097
Georgia	65,339	54,413	60,424	81,350	95,125	107,182	125,003	142,197
Maryland	29,854	31,015	36,001	42,215	59,733	73,156	91,738	108,922
North Carolina	9,669	21,059	21,246	22,151	25,757	31,865	41,222	40,761
South Carolina	14,295	18,992	20,750	30,488	37,110	33,793	44,864	50,859
Virginia	12,243	16,423	25,947	27,855	29,841	32,301	37,985	46,627
West Virginia	7,151	6,487	7,029	7,773	10,736	11,213	15,081	14,236
East South Central	63,292	51,570	65,819	80,248	97,939	110,676	121,210	132,614
Alabama	5,996	9,030	12,407	22,205	29,919	33,029	43,635	50,803
Kentucky	14,333	15,729	17,645	25,577	26,545	35,099	30,593	33,258
Mississippi	27,524	10,281	12,127	10,937	8,897	8,680	9,659	9,458
Tennessee	15,439	16,530	23,640	24,829	32,578	33,868	37,323	39,095
West South Central	195,988	210,529	226,529	245,167	276,433	282,016	326,407	390,884
Arkansas	6,168	6,233	5,675	7,875	8,028	7,286	9,521	12,451
Louisiana	22,788	25,486	37,041	38,096	42,639	45,611	47,129	55,010
Oklahoma	52,076	53,679	51,537	51,149	57,472	65,105	60,063	70,398
Texas	114,956	125,131	132,276	148,047	168,294	167,014	209,694	253,025
Mountain	69,164	90,564	100,528	120,831	135,731	157,007	182,410	203,386
Arizona	19,997	39,619	45,202	53,798	61,644	71,898	85,773	97,013
Colorado	14,208	18,917	18,657	21,968	17,682	17,916	17,735	22,465
Idaho	1,191	1,236	1,392	5,331	4,436	5,432	8,148	9,596
Montana	7,003	6,117	6,372	6,920	7,604	8,442	9,534	10,147
Nevada	4,694	2,432	4,375	6,106	7,824	7,824	9,312	9,201
New Mexico	4,339	4,591	6,404	6,711	14,187	16,183	17,860	19,399
Utah	11,494	12,150	12,423	13,750	16,178	23,208	27,822	29,237
Wyoming	6,238	5,502	5,703	6,247	6,176	6,104	6,226	6,328
Pacific	192,808	215,902	263,390	302,869	359,785	379,498	399,893	439,260
Alaska	15,060	16,626	16,973	17,318	17,960	19,229	21,869	23,636
California	167,936	187,127	216,124	241,302	289,604	312,118	321,575	355,615
Hawaii	1,159	1,444	1,695	2,064	2,591	2,975	3,686	3,568
Oregon	7,401	7,745	8,531	10,010	16,007	17,225	16,637	19,013
Washington	1,252	2,960	20,067	32,175	33,623	27,951	36,126	37,428
Outlying Areas	4,945	5,467	5,990	6,509	7,627	7,865	8,597	10,008

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

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Table B-28. All other sources of financed R&D expenditures at doctorate-granting institutions, by geographic division and State: fiscal years 1983-1990

(Dollars in thousands)

Division and State	1983	1984	1985	1986	1987	1988	1989	1990
Total	569,953	606,552	686,573	725,337	821,143	930,181	1,064,834	1,207,968
New England	65,485	66,153	83,393	87,208	92,869	108,877	123,758	131,881
Connecticut	12,421	7,872	17,000	15,534	23,519	23,370	23,139	24,680
Maine	687	472	2,407	2,004	1,059	713	533	735
Massachusetts	48,016	53,620	56,492	61,922	61,596	78,616	89,795	95,854
New Hampshire	3,212	1,882	2,602	3,412	4,055	4,092	5,426	3,841
Rhode Island	400	1,500	3,906	3,120	1,394	601	2,128	5,470
Vermont	749	807	986	1,216	1,246	1,485	2,737	2,201
Middle Atlantic	120,042	136,764	146,857	165,957	177,145	207,668	232,472	244,508
New Jersey	8,254	9,506	10,763	12,814	14,991	17,656	20,284	24,591
New York	80,679	93,758	95,194	106,893	111,335	137,553	153,541	161,684
Pennsylvania	31,109	33,500	40,900	46,250	50,819	52,459	58,647	58,233
East North Central	78,334	80,647	86,484	105,405	122,759	134,161	147,516	188,708
Illinois	20,145	20,177	22,656	30,999	32,065	37,974	40,911	49,185
Indiana	5,765	5,475	6,300	5,820	6,071	8,041	10,238	16,070
Michigan	18,264	17,046	14,826	24,272	29,473	31,939	35,259	41,307
Ohio	20,927	23,497	25,442	36,727	31,237	35,135	37,055	51,398
Wisconsin	13,233	14,452	17,260	17,587	23,913	21,072	24,053	30,748
West North Central	35,044	38,238	43,855	50,602	53,677	57,548	58,126	71,669
Iowa	4,954	5,395	7,315	10,363	8,091	7,663	5,621	9,724
Kansas	3,260	3,644	4,051	3,869	3,474	2,946	4,014	4,546
Minnesota	13,813	16,523	19,741	21,208	25,664	29,098	27,090	29,314
Missouri	9,110	10,568	10,272	11,959	11,794	13,275	16,057	22,690
Nebraska	3,089	1,641	1,786	2,444	3,561	3,340	4,119	3,832
North Dakota	183	316	317	480	827	999	1,003	1,226
South Dakota	635	351	373	479	266	227	222	337
South Atlantic	44,342	47,259	59,872	62,113	76,287	82,347	109,449	130,159
Delaware	1,083	1,046	1,107	1,675	2,248	2,407	2,310	3,244
District of Columbia	6,209	5,542	4,797	4,629	6,184	5,619	5,625	6,833
Florida	10,826	13,511	11,048	13,003	16,962	17,176	25,593	26,339
Georgia	3,512	3,434	3,507	8,027	10,052	9,524	12,135	10,743
Maryland	7,046	5,056	15,005	10,013	11,709	19,349	25,318	30,733
North Carolina	5,816	9,075	11,278	11,987	14,163	11,263	14,096	16,009
South Carolina	2,405	2,275	2,719	3,646	4,106	4,321	8,319	10,377
Virginia	6,558	6,512	9,329	7,837	9,661	11,266	14,323	24,124
West Virginia	887	808	1,082	1,296	1,202	1,422	1,730	1,757
East South Central	14,408	19,360	16,696	18,457	26,194	31,787	41,050	45,127
Alabama	6,479	9,671	6,796	7,877	10,259	9,555	16,456	19,691
Kentucky	601	713	858	1,551	3,129	5,927	5,813	4,566
Mississippi	2,305	2,692	2,021	2,038	5,396	5,709	7,573	6,512
Tennessee	5,023	6,284	7,021	6,991	7,410	10,596	11,208	14,358
West South Central	69,366	75,191	83,619	96,242	119,585	137,411	156,022	167,682
Arkansas	1,802	2,186	2,666	2,661	3,063	3,064	3,633	3,035
Louisiana	7,835	6,546	9,120	10,136	12,553	12,405	14,733	15,418
Oklahoma	1,523	2,339	3,121	3,835	5,470	7,910	9,420	8,699
Texas	58,206	64,120	68,712	79,610	98,499	114,032	128,236	140,534
Mountain	30,912	23,531	23,525	29,616	35,858	43,020	46,304	54,796
Arizona	5,343	6,189	6,514	7,830	12,243	11,968	11,942	15,531
Colorado	9,652	9,091	9,355	12,549	14,515	15,902	16,717	19,886
Idaho	692	726	795	96	142	0	147	251
Montana	0	0	0	0	0	214	203	162
Nevada	3,949	1,337	692	974	661	880	1,315	1,437
New Mexico	6,769	1,764	2,840	3,423	4,004	9,320	10,507	10,496
Utah	4,497	3,950	3,087	4,592	4,199	4,510	5,267	6,794
Wyoming	10	474	242	152	94	226	206	239
Pacific	111,965	119,342	142,208	109,597	116,669	127,250	148,195	171,484
Alaska	1,224	1,886	1,925	1,965	1,926	2,667	3,033	3,734
California	83,336	91,769	104,600	77,055	90,254	99,520	116,454	140,073
Hawaii	445	811	898	718	704	896	915	1,220
Oregon	10,570	8,493	14,248	15,419	14,683	16,928	19,640	16,165
Washington	16,390	16,383	20,537	14,440	9,102	7,239	8,153	10,292
Outlying Areas	55	67	64	140	100	112	1,942	1,954

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-29. R&D expenditures at doctorate-granting institutions, by State, control, and source of funds: fiscal year 1990

[Dollars in thousands]

State, control and institution	Total	Federal Government	State and local governments	Industry	Institutional funds	All other sources
United States, total	16,057,003	9,453,757	1,298,659	1,114,503	2,982,116	1,207,968
Public, total	10,587,079	5,486,278	1,167,064	732,198	2,490,560	720,979
Private, total	5,469,924	3,967,479	131,595	382,305	491,556	486,989
Alabama, total	239,556	124,648	25,752	18,662	50,803	19,691
Public, total	239,556	124,648	25,752	18,662	50,803	19,691
Auburn University	66,795	14,629	21,911	5,541	19,557	5,157
The University of Alabama	21,488	6,941	274	1,798	11,969	506
Univ Alabama Birmingham	110,603	74,486	2,199	7,241	12,649	14,028
Univ Alabama Huntsville	29,562	21,355	972	2,229	4,709	0
Univ of South Alabama	11,105	7,237	396	1,553	1,919	0
Alaska, total	65,571	31,896	2,205	4,100	23,636	3,734
Public, total	65,571	31,896	2,205	4,100	23,636	3,734
Univ of Alaska Fairbanks	65,571	31,896	2,205	4,100	23,636	3,734
Arizona, total	260,187	122,259	7,318	18,066	97,013	15,531
Public, total	260,187	122,259	7,318	18,066	97,013	15,531
Arizona State University	58,652	26,590	1,045	7,354	22,115	1,548
Northern Arizona Univ	5,902	2,749	162	466	2,525	0
University of Arizona	195,633	92,920	6,111	10,246	72,373	13,983
Arkansas, total	48,861	17,485	11,826	4,064	12,451	3,035
Public, total	48,861	17,485	11,826	4,064	12,451	3,035
U of Arkansas Med Sci Cam	11,898	6,654	140	1,117	2,144	1,843
Univ of Ark Fayetteville	36,963	10,831	11,686	2,947	10,307	1,192
California, total	2,007,361	1,369,315	51,357	91,001	355,615	140,073
Public, total	1,410,219	893,401	47,945	50,566	305,311	112,996
San Diego State Univ	22,524	14,647	1,536	1,994	3,706	641
U of California System	0	0	0	0	0	0
US Naval Postgrad School	17,391	17,333	0	0	0	58
Univ of Cal Berkeley	231,061	131,717	9,032	10,892	66,764	12,656
Univ of Cal Davis	198,075	77,424	12,144	7,461	88,421	12,625
Univ of Cal Irvine	78,074	52,492	2,268	3,115	11,419	8,780
Univ of Cal Los Angeles	246,795	164,442	3,701	8,310	38,052	32,290
Univ of Cal Riverside	54,892	15,806	2,374	903	32,636	3,173
Univ of Cal San Diego	237,032	182,555	4,922	9,135	23,145	17,275
Univ of Cal San Francisco	238,278	175,257	9,971	5,276	26,475	21,299
Univ of Cal Santa Barbara	59,750	47,873	1,169	2,655	5,617	2,436
Univ of Cal Santa Cruz	26,347	13,855	828	825	9,076	1,763
Private, total	597,142	475,914	3,412	40,435	50,304	27,077
Biola University	0	0	0	0	0	0
Cal Sch Prof Psych-Berkly	0	0	0	0	0	0
Cal Sch Prof Psych-Fresno	1,382	985	0	0	397E	0
Cal Sch Prof Psych-L A	1,316	1,163	0	0	153	0
Cal Sch Prof Psych-S D	66I	0I	0I	0I	66I	0I
California Inst of Tech	105,730	90,577	510	2,268	7,492	4,883
Chas R Drew U of Med & Sc	3,098I	3,098I	0I	0I	0I	0I
Claremont Univ Ctr & Grad	583	47	64	149	110	213
Col Osteo Med of Pacific	9	0	0	0	9	0
Fielding Institute	0	0	0	0	0	0
Fuller Theological Sem	50	0	0	0	50	0
Loma Linda University	7,547	3,349	0	3,266	742	190
Rand Grad Inst Pol Stdies	0	0	0	0	0	0
Santa Clara University	1,569	550	0	82	835	102
Stanford University	305,700I	251,446I	449I	15,774I	16,342I	21,689I
The Wright Institute	0	0	0	0	0	0
US International Univ	93	88	0	0	5	0
Univ of Southern Cal	169,102	123,714	2,389	18,896	24,103	0
University of the Pacific	897	897	0	0	0	0

See explanatory information, if any, and SOURCE(S) at end of table.

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Table B-29. R&D expenditures at doctorate-granting institutions, by State, control, and source of funds: Fiscal year 1990

[Dollars in thousands]

State, control, and institution	Total	Federal Government	State and local governments	Industry	Institutional funds	All other sources
Colorado, total	249,958	179,978	11,637	15,992	22,465	19,886
Public, total	239,856	172,502	11,437	14,369	21,662	19,886
Colorado School of Mines	10,943	5,310	1,217	4,060	356	0
Colorado State University	73,967	50,744	8,684	2,883	6,988	4,668
Univ of Northern Colorado	223	54	4	0	90	75
Univ. of Colorado	154,723	116,394	1,532	7,426	14,228	15,143
Private, total	10,102	7,476	200	1,623	803	0
University of Denver	10,102	7,476	200	1,623	803	0
Connecticut, total	298,076	190,388	5,262	13,402	64,344	24,680
Public, total	113,349	43,477	4,010	6,388	51,409	8,065
University of Connecticut	113,349	43,477	4,010	6,388	51,409	8,065
Private, total	184,727	146,911	1,252	7,014	12,935	16,615
Wesleyan University	4,021	1,949	318	0	1,471	283
Yale University	180,706	144,962	934	7,014	11,464	16,332
Delaware, total	40,119	17,588	3,139	4,397	11,751	3,244
Public, total	40,119	17,588	3,139	4,397	11,751	3,244
University of Delaware	40,119	17,588	3,139	4,397	11,751	3,244
District of Columbia, total	112,146	86,292	465	8,017	10,539	6,833
Private, total	112,146	86,292	465	8,017	10,539	6,833
American University	4,127	3,532	28	183	318	66
Catholic Univ of America	7,398	6,783	0	615	0	0
George Washington Univ	32,372	26,817	165	988	1,490	2,912
Georgetown University	50,867	36,093	155	3,362	7,418	3,839
Howard University	17,382	13,067	117	2,869	1,313E	16
Florida, total	433,413	223,232	33,305	28,440	122,097	26,339
Public, total	330,465	152,496	27,984	21,753	116,299	11,933
Florida A & M University	15,847	13,110	2,592	145	0	0
Florida Atlantic Univ	4,985	2,010	1,671	639	665	0
Florida State University	62,933	32,927	2,396	669	24,940	2,001
Univ of Central Florida	30,618	9,354	5,485	3,813	11,966	0
Univ of South Florida	76,404	30,481	4,153	4,250	35,356	2,164
University of Florida	139,678	64,614	11,687	12,237	43,372	7,768
Private, total	102,948	70,736	5,321	6,687	5,798	14,406
Florida Inst of Tech	7,003	1,251	3,067	1,205	1,243	237
Nova University	1,601	1,341	144	116	0	0
University of Miami	94,344	68,144	2,110	5,366	4,555	14,169
Georgia, total	445,011	212,443	42,638	36,990	142,197	10,743
Public, total	345,929	150,372	39,249	29,243	123,960	3,105
Georgia Institute of Tech	168,193	94,842	1,229	21,256	50,866	0
Georgia State University	8,942	3,621	455	270	3,718	878
Medical Col of Georgia	12,052	8,045	207	1,920	841	1,039
University of Georgia	156,742	43,864	37,358	5,797	68,535	1,188
Private, total	99,082	62,071	3,389	7,747	18,237	7,638
Clark Atlanta University	0I	0I	0I	0I	0I	0I
Emory University	82,774	52,367	3,324	7,170	13,463	6,450
Inst Paper Sci and Tech	5,761	965	0	172	3,936	688
Mercer University	4,656	3,590	65	355	646	0
Morehouse School of Med	5,891	5,149	0	50	192	500

See explanatory information, if any, and SOURCE(S) at end of table.

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Table B-29. R&D expenditures at doctorate-granting institutions, by State, control, and source of funds: fiscal year 1990

[Dollars in thousands]

State, control, and institution	Total	Federal Government	State and local governments	Industry	Institutional funds	All other sources
Hawaii, total	76,525	42,665	27,487	1,585	3,568	1,220
Public, total	76,525	42,665	27,487	1,585	3,568	1,220
Univ of Hawaii-Manoa	76,525	42,665	27,487	1,585	3,568	1,220
Idaho, total	36,570	14,361	8,156	4,206	9,596	251
Public, total	36,570	14,361	8,156	4,206	9,596	251
Idaho State University	1,634	549	325	475	83	202
University of Idaho	34,936	13,812	7,831	3,731	9,513	49
Illinois, total	647,863	352,417	37,911	44,148	164,202	49,185
Public, total	350,764	173,617	35,143	30,154	93,169	18,681
Illinois State University	2,951	1,193	1,085	0	45	628
Northern Illinois Univ	8,930	3,251	422	2,351	2,906	0
Southern Ill U-Carbondale	25,873	8,035	3,346	1,884	10,841	1,767
Univ of Ill Chicago	85,268	43,968	1,708	5,157	25,786	8,649
Univ of Ill Urbana	227,742	117,170	28,582	20,762	53,591	7,637
Private, total	297,099	178,800	2,768	13,994	71,033	30,504
Chicago Col of Osteo Med	1,161	318	0	348	495	0
De Paul University	972	623	15	13	230	91
Illinois Inst of Tech	6,793	3,887	174	1,819	913	0
Loyola Univ - Chicago	12,260	6,203	221	1,398	2,314	2,124
Northwestern University	131,979	61,812	1,081	5,325	49,949	13,812
Rush University	21,284	6,083	1,083	3,622	6,438	4,058
U Hlth Sci/Chcgo Med Sch	4,695	3,547	0	267	484	397
University of Chicago	117,955	96,327	194	1,202	10,210	10,022
Indiana, total	240,696	134,953	19,449	18,165	52,059	16,070
Public, total	221,323	122,086	19,237	14,200	49,730	16,070
Ball State University	850	153	117	228	352	0
Indiana State University	903	314	17	24	527	21
Indiana University	89,191	57,155	798	2,316	19,346	9,576
Purdue University	130,379	64,464	18,305	11,632	29,505	6,473
Private, total	19,373	12,867	212	3,965	2,329	0
University of Notre Dame	19,373	12,867	212	3,965	2,329	0
Iowa, total	232,147	113,268	29,500	12,354	67,301	9,724
Public, total	232,080	113,225	29,500	12,354	67,294	9,707
Iowa St U of Sci & Tech	115,945	34,043	26,833	5,525	44,639	4,905
Univ of Northern Iowa	357	136	132	2	86	1
University of Iowa	115,778	79,046	2,535	6,827	22,569	4,801
Private, total	67	43	0	0	7	17
Univ Osteo Med & Hlth Sci	67	43	0	0	7	17
Kansas, total	114,651	43,478	25,523	7,613	33,491	4,546
Public, total	114,651	43,478	25,523	7,613	33,491	4,546
Kans St U - Ag & App Sci	50,311	15,651	22,757	2,483	7,357	2,063
University of Kansas	61,144	26,786	2,240	4,473	25,901	1,744
Wichita State University	3,196	1,041	526	657	233	739

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-29. R&D expenditures at doctorate-granting institutions, by State, control, and source of funds: fiscal year 1990

[Dollars in thousands]

State, control, and institution	Total	Federal Government	State and local governments	Industry	Institutional funds	All other sources
Kentucky, total	90,880	38,249	6,684	8,123	33,258	4,566
Public, total	90,880	38,249	6,684	8,123	33,258	4,566
University of Kentucky	74,959	29,612	6,594	6,720	27,467	4,566
University of Louisville	15,921	8,637	90	1,403	5,791	0
Louisiana, total	207,038	82,769	43,673	10,168	55,010	15,418
Public, total	148,729	52,536	41,808	4,216	39,225	10,944
Louisiana State Univ	135,849	48,802	39,536	3,759	33,636	10,116
Louisiana Tech University	3,894	2,629	355	450	460	0
Northeast Louisiana Univ	667	231	429	7	0	0
Univ of Southwestern LA	8,319	874	1,488	0	5,129	828
Private, total	58,309	30,233	1,865	5,952	15,785	4,474
Tulane University	56,407	28,331	1,865	5,952	15,785	4,474
Xavier University of LA	1,902	1,902	0	0	0	0
Maine, total	23,605	9,046	908	4,663	8,253	735
Public, total	23,605	9,046	908	4,663	8,253	735
Univ of Maine Orono	23,605	9,046	908	4,663	8,253	735
Maryland, total	977,593	724,468	71,426	42,044	108,922	30,733
Public, total	308,678	124,617	68,292	27,083	80,246	8,440
U of MD Baltimore County	5,385	4,147	0	0	46	1,192
U of MD Center For EES	15,652	2,379	3,153	63	8,979	1,078
U of MD Eastern Shore	1,850	1,552	298	0	0	0
Unif Serv Univ of Hlth Sc	36,080	11,288	0	0	24,792	0
Univ of MD Balt Prof Sch	83,689	38,841	16,815	12,791	9,072	6,170
Univ of MD College Park	166,022	66,410	48,026I	14,229I	37,357I	0I
Private, total	668,915	599,851	3,134	14,961	28,676	22,293
Johns Hopkins Univ	668,915	599,851	3,134	14,961	28,676	22,293
Massachusetts, total	898,808	649,104	14,081	86,125	53,644	95,854
Public, total	113,103	60,680	8,633	15,570	20,687	7,533
Univ of Massachusetts	101,812	56,018	7,429	11,678	20,500	6,187
University of Lowell	11,291	4,662	1,204	3,892	187	1,346
Private, total	785,705	588,424	5,448	70,555	32,957	88,321
Boston College	8,052	6,798	1	210	371	672
Boston University	73,655	60,459	171	4,611	0	8,414
Brandeis University	30,881	18,819	467	0	4,725	6,870
Clark University	1,281	919	0	0	0	362
Harvard University	220,812	154,090	1,146I	10,565I	16,766I	38,245I
Mass Col Phar/Allied Hlth	73	0I	0	73	0	0
Mass Inst of Technology	311,767	233,813	2,489	43,460	7,109	24,896
Northeastern University	14,347	10,217	359	1,711	241	1,819
Smith College	1,398	298	0	0	361	739
Tufts University	47,009	38,290	115	7,761E	821E	22E
Woods Hole Ocngrphic Inst	71,747	62,356	515	532	2,275	6,069
Worcester Poly Institute	4,683	2,365	185	1,632	288	213
Michigan, total	527,070	276,078	36,747	44,694	128,244	41,307
Public, total	525,150	275,737	36,746	43,450	128,011	41,206
Central Michigan Univ	1,071	60	534	65	412	0
Michigan State University	126,987	58,221	24,069	4,557	30,735	9,405
Michigan Tech University	16,037	6,045	3,437	3,999	2,556	0
Oakland University	4,102	1,882	0	724	1,397	99
University of Michigan	310,578	180,456	2,687	27,128	74,299	26,008
Wayne State University	62,455	28,488	5,306	5,875	17,715	5,071
Western Michigan Univ	3,920	585	713	1,102	897	623

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-29. R&D expenditures at doctorate-granting institutions, by State, control, and source of funds: fiscal year 1990

[Dollars in thousands]

State, control, and institution	Total	Federal Government	State and local governments	Industry	Institutional funds	All other sources
Michigan, continued						
Private, total	1,920	341	1	1,244	233	101
Andrews University	394	96	1	0	196	101
University of Detroit	1,526	245	0	1,244	37	0
Minnesota, total	292,046	143,810	47,437	18,086	53,399	29,314
Public, total	292,046	143,810	47,437	18,086	53,399	29,314
University of Minnesota	292,046	143,810	47,437	18,086	53,399	29,314
Private, total	0	0	0	0	0	0
Mayo Grad School of Med	0	0	0	0	0	0
Mississippi, total	85,229	40,343	20,745	8,171	9,458	6,512
Public, total	85,229	40,343	20,745	8,171	9,458	6,512
Mississippi State Univ	58,492	21,426	20,684	6,389	5,298	4,695
Univ of Sthrn Mississippi	4,666	3,944	28	532	148	14
University of Mississippi	22,071	14,973	33	1,250	4,012	1,803
Missouri, total	281,133	152,398	18,469	28,082	59,494	22,690
Public, total	112,188	32,335	15,144	12,802	45,052	6,855
Univ of Missouri Columbia	84,311	24,422	13,398	9,130	32,468	4,893
Univ of Missouri Kan City	8,310	2,767	771	1,383	3,117	272
Univ of Missouri Rolla	14,285	3,863	835	2,186	6,141	1,260
Univ of Missouri St Louis	2,291	1,167	86	69	667	302
Univ of Missouri Sys Off	2,991	116	54	34	2,659	128
Private, total	168,945	120,063	3,325	15,280	14,442	15,835
Kirksville Col Osteo Med	539	198	0	0	17	324
St Louis University	17,157	14,106	216	1,148	101	1,586
Univ of Health Sciences	0	0	0	0	0	0
Washington University	151,249	105,759	3,109	14,132	14,324	13,925
Montana, total	34,980	12,520	7,885	4,266	10,147	162
Public, total	34,980	12,520	7,885	4,266	10,147	162
Montana State University	27,648	9,052	7,153	3,833	7,610	0
University of Montana	7,332	3,468	732	433	2,537	162
Nebraska, total	105,373	34,356	27,976	11,075	28,134	3,832
Public, total	96,444	31,951	27,751	4,991	27,919	3,832
U of Neb Med Ctr at Omaha	17,844	9,078	511	1,595	4,819	1,841
Univ of Nebraska at Omaha	1,002	187	116	2	476	221
Univ of Nebraska-Lincoln	77,598	22,686	27,124	3,394	22,624	1,770
Private, total	8,929	2,405	225	6,084	215	0
Creighton University	8,929	2,405	225	6,084	215	0
Nevada, total	38,301	20,689	2,418	4,556	9,201	1,437
Public, total	38,301	20,689	2,418	4,556	9,201	1,437
Desert Research Institute	16,852	8,767	1,716	3,329	2,844	196
Univ of Nevada - Reno	21,449	11,922	702	1,227	6,357	1,241

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-29. R&D expenditures at doctorate-granting institutions, by State, control, and source of funds: fiscal year 1990

[Dollars in thousands]

State, control, and institution	Total	Federal Government	State and local governments	Industry	Institutional funds	All other sources
New Hampshire, total	69,731	44,590	3,985	3,715	11,500	5,941
Public, total	25,994	14,455	1,291	1,464	5,922	2,862
Univ of New Hampshire	25,994	14,455	1,291	1,464	5,922	2,862
Private, total	43,737	30,135	2,694	2,251	5,578	3,079
Dartmouth College	43,737	30,135	2,694	2,251	5,578E	3,079
New Jersey, total	319,797	135,078	46,278	17,528	96,322	24,591
Public, total	217,439	76,893	43,419	11,372	70,635	15,120
N J Inst of Technology	15,225	2,731	8,422	1,710	586	1,776
Rutgers the St Univ of NJ	137,985	40,977	26,766	6,754	55,786	7,702
Univ of Med & Dent of N J	64,229	33,185	8,231	2,908	14,263	5,642
Private, total	102,358	58,185	2,859	6,156	25,687	9,471
Fairleigh Dickinson Univ	3,183	2,364	713	19	14	73
Princeton University	91,514	51,559	1,164	4,964	24,479	9,348
Seton Hall University	1,515I	1,302I	0I	213I	0I	0I
Stevens Institute of Tech	6,146	2,960	982	960	1,194	50
New Mexico, total	151,927	85,747	14,776	21,509	19,399	10,496
Public, total	151,927	85,747	14,776	21,509	19,399	10,496
N Mex Inst Mining & Tech	22,911	5,610	1,626	10,194	4,908	573
New Mexico State Univ	71,288	54,688	8,250	7,293	884	173
University of New Mexico	57,728	25,449	4,900	4,022	13,607	9,750
New York, total	1,410,700	917,748	75,518	77,952	177,798	161,684
Public, total	325,119	185,867	12,431	10,677	63,614	52,530
CUNY City College	12,973	10,554	716	442	0	1,261
CUNY Grad Sch & Univ Ctr	3,858	2,990	0	0	46	822
CUNY Hunter College	6,928	4,531	0	360	1,489	548
SUNY Col of Env Sci & For	18,671	1,973	622	1,867	13,587	622
SUNY Hlth Sci Ctr - Brkln	22,873	14,574	2,400	1,084	1,652	3,163
SUNY Hlth Sci Ctr - Syrcs	35,193	9,965	393	320	0	24,515
SUNY St Coll of Optometry	483	294	0	25	130	34
SUNY at Albany	22,034	14,497	157	727	5,858	795
SUNY at Binghamton	10,680	3,702	1,234	1,308	2,995	1,441
SUNY at Buffalo	109,190	66,876	4,164	2,118	19,823	16,209
SUNY at Stony Brook	82,236	55,911	2,745	2,426	18,034	3,120
Private, total	1,085,581	731,881	63,087	67,275	114,184	109,154
Adelphi University	633I	295I	216I	0I	122I	0I
Albany Med Ctr Grad Sch	9,431	6,073	0	719	1,131	1,508
Alfred University	4,067	344	1,090	1,672	917	44
CUNY Mt Sinai Sch of Med	63,752	43,607	971	4,053	5,327	9,794
Clarkson University	8,392	3,841	1,239	1,638	1,674	0
Columbia U Teachers Col	803	181	0	0	0	622
Columbia Univ Main Div	182,769	156,270	2,635	5,618	4,352	13,894
Cornell University	300,144	171,249	42,385	16,620	49,763	20,127
Fordham University	2,501	1,723	348	0	105	325
Hofstra University	515	445	45	25	0	0
Long Island University	171	57	12	16	49	37
New Sch For Soc Research	1,026	293	0	0	0	733
New York Inst Technology	3,087	0	0	475	2,612	0
New York Medical College	13,244	9,028	375	1,706	0	2,135
New York University	108,511	80,756	786	5,260	9,118	12,591
Polytechnic University	10,919	7,025	1,201	2,278	265	150
Rensselaer Polytech Inst	47,363	22,809	3,255	11,418	4,267	5,614
Rockefeller University	75,245	36,788	268	4,918	16,805	16,466
St John's University (NY)	759	519	26	214	0	0
Syracuse University	33,811	18,924	1,626	3,851	6,273	3,137
Union College (NY)	5,459	944	444	375	0	3,696
University of Rochester	129,011	105,644	6,165	6,419	1,801	8,982
Yeshiva University	83,968	65,066	0	0	9,603	9,299

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-29. R&D expenditures at doctorate-granting institutions, by State, control, and source of funds: fiscal year 1990

[Dollars in thousands]

State, control, and institution	Total	Federal Government	State and local governments	Industry	Institutional funds	All other sources
North Carolina, total	441,860	276,795	64,923	43,372	40,761	16,009
Public, total	261,498	140,560	63,389	25,478	29,514	2,557
East Carolina University	6,098	3,499	907	1,692	0	0
N C State Univ at Raleigh	131,133	43,787	49,013	21,398	14,485	2,450
Univ of N C at Greensboro	1,154	806	4	209	41	94
Univ of NC at Chapel Hill	123,113	92,468	13,465	2,179	14,988	13
Private, total	180,362	136,235	1,534	17,894	11,247	13,452
Duke University	140,708	106,053	1,391	12,252	9,757	11,255
Wake Forest University	39,654	30,182	143	5,642	1,490	2,197
North Dakota, total	29,966	20,815	1,061	2,845	4,019	1,226
Public, total	29,966	20,815	1,061	2,845	4,019	1,226
North Dakota State Univ	12,468	6,417	928	1,289	2,997	837
University of N Dakota	17,498	14,398	133	1,556	1,022	389
Ohio, total	457,189	260,537	46,349	37,385	61,520	51,398
Public, total	327,628	160,978	44,252	27,641	53,650	41,107
Air Force Inst of Tech/Nr	2,200	2,200	0	0	0	0
Bowling Green State Univ	3,400	1,882	235	180	1,103	0
Cleveland State Univ	8,699	3,695	2,022	206	2,667	109
Kent State University	7,172	4,656	265	195	1,935	121
Med Col of Ohio at Toledo	7,159	5,956	336	468	0	399
Miami University (Ohio)	2,203	1,365	195	643	0	0
NE Ohio Univ Med School	1,409	708	110	22	398	171
Ohio State University	178,569	78,878	31,254	14,744	24,624	29,069
Ohio University	12,982	4,140	3,816	454	4,598	274
University of Akron	10,372	3,005	1,733	3,873	1,761	0
University of Cincinnati	74,461	44,966	2,978	4,468	13,114	8,935
University of Toledo	5,551	2,101	484	1,885	736	345
Wright State University	13,451	7,426	824	503	3,014	1,684
Private, total	129,561	99,559	2,097	9,744	7,870	10,291
Antioch University	0	0	0	0	0	0
Case Western Reserve Univ	93,384	70,515	1,546	4,954	6,348E	10,021
Union Institute	0	0	0	0	0	0
University of Dayton	36,177	29,044	551	4,790	1,522	270
Oklahoma, total	130,650	37,020	7,665	6,872	70,398	8,695
Public, total	126,265	35,983	7,251	4,533	69,927	8,571
OSU College of Osteo Med	1,935	1,368	264	8	287	8
Oklahoma State University	65,685	17,744	3,004	1,963	42,142	832
University of Oklahoma	58,645	16,871	3,983	2,562	27,498	7,731
Private, total	4,385	1,037	414	2,339	471	124
Oral Roberts University	60	0	0	9	51	0
University of Tulsa	4,325	1,037	414	2,330	420	124
Oregon, total	171,550	107,466	22,568	6,338	19,013	16,165
Public, total	162,288	100,629	22,516	4,747	18,248	16,148
Oregon Hlth Sciences Univ	41,420	27,241	0	1,325	7,671	5,183
Oregon State University	90,688	50,544	21,901	3,167	5,446	9,630
Portland State University	3,834	2,693	346	37	509	249
University of Oregon	26,346	20,151	269	218	4,622	1,086
Private, total	9,262	6,837	52	1,591	765	17
Oregon Grad Inst Sci/Tech	9,262	6,837	52	1,591	765	17

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-29. R&D expenditures at doctorate-granting institutions, by State, control, and source of funds: fiscal year 1990

[Dollars in thousands]

State, control and institution	Total	Federal Government	State and local governments	Industry	Institutional funds	All other sources
Pennsylvania, total	829,518	515,094	31,152	99,065	125,974	58,233
Public, total	424,091	253,520	12,922	43,994	95,933	17,722
Pennsylvania State Univ	256,926	136,656	10,915	34,806	74,476	73
Temple University	49,449	26,164	778	2,707	14,241	5,559
University of Pittsburgh	117,716	90,700	1,229	6,481	7,216	12,090
Private, total	405,427	261,574	18,230	55,071	30,041	40,511
Bryn Mawr College	1,854	1,252	128	0	469	5
Carnegie-Mellon Univ	100,201	64,550	6,350	20,295	1,881	7,125
Drexel University	20,079	6,761	1,619	3,888	7,811	0
Duquesne University	558	216	0	0	225	117
Hahnemann University	13,595	8,244	337	232	1,593E	3,189E
Lehigh University	27,255	11,242	2,797	8,030	4,580	606
Phila Col Osteopathic Med	340	83	0	0	245	12
Phila Col of Pharm & Sci	1,153	381	0	772	0	0
The Medical Col of Penna	18,643	11,704	3,246	1,263	429	2,001
Thomas Jefferson Univ	30,969	22,451	0	8,518	0	0
Univ of Pennsylvania	189,390	133,747	3,635	11,973	12,579	27,456
Villanova University	1,390	943	118	100	229	0
Rhode Island, total	82,634	57,430	5,119	4,378	13,237	2,470
Public, total	35,846	20,511	4,802	1,071	9,411	51
Univ of Rhode Island	35,846	20,511	4,802	1,071	9,411	51
Private, total	46,788	36,919	317	3,307	3,826	2,419
Brown University	46,763	36,919	317	3,307	3,801	2,419
Providence College	25	0	0	0	25	0
South Carolina, total	137,269	45,718	17,384	12,931	50,859	10,377
Public, total	137,269	45,718	17,384	12,931	50,859	10,377
Clemson University	66,664	14,221	16,424	7,595	26,262	2,162
Med Univ of So Carolina	23,128	10,910	0	2,264	5,810	4,144
Univ of South Carolina	47,477	20,587	960	3,072	18,787	4,071
South Dakota, total	14,342	6,874	5,779	380	972	337
Public, total	14,342	6,874	5,779	380	972	337
S Dak Sch Mines & Tech	3,000	2,268	574	98	44	16
South Dakota State Univ	9,511	3,666	4,785	282	550	228
Univ of South Dakota	1,831	940	420	0	378	93
Tennessee, total	232,121	136,957	30,713	10,998	39,095	14,358
Public, total	150,396	63,819	30,670	8,647	36,955	10,305
East Tennessee State Univ	1,902	1,219	20	14	84	565
Memphis State University	12,073	2,666	3,051	239	5,551	566
Tenn Technological Univ	9,631	1,286	4,377	945	1,663	1,360
Univ. Of Tennessee System	126,790	58,648	23,222	7,449	29,657	7,814
Private, total	81,725	73,138	43	2,351	2,140	4,053
Meharry Medical College	6,663	6,391	0	38	185	49
Vanderbilt University	75,062	66,747	43	2,313	1,955	4,004
Texas, total	1,123,816	522,489	130,676	77,092	253,025	140,534
Public, total	922,245	411,255	124,069	64,466	234,024	88,431
East Texas State Univ	279	113	3	101	7	55
Lamar University	2,121	1,317	746	58	0	0
Sam Houston State Univ	380	93	7	50	184	46
Stephen F Austin St Univ	1,390	289	654	181	266	0
Texas A & M University	272,800	93,001	70,908	26,197	73,783	8,911
Texas Tech University	34,142	9,695	11,669	4,708	6,761	1,309

See explanatory information, if any, and SOURCE(S) at end of table.

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Table B-29. R&D expenditures at doctorate-granting institutions, by State, control, and source of funds: fiscal year 1990

[Dollars in thousands]

State, control, and institution	Total	Federal Government	State and local governments	Industry	Institutional funds	All other sources
Texas, continued						
Public, continued						
Texas Woman's University	1,336	476	537	258	65	0
U Tex Hlth Sci Ctr Houstn	43,707	29,017	1,066	5,142	4,185	6,297
U Tex Hlth Sci Ctr S Anto	45,663	29,431	2,241	6,166	4,901	2,924
U Tex Med Brnch Galveston	40,610	21,693	5,519	2,260	6,088	5,050
U of Houston	37,978	17,575	9,706	1,529	6,202	2,966
UT MD Anderson Cancer Ctr	91,283	28,889	0	0	41,501	20,893
UT SW Medical Ctr-Dallas	85,919	54,965	31	8,537	4,633	17,753
Univ of North Texas	9,741	1,974	3,749	2,407	1,611	0
Univ of Tex at Arlington	5,729	1,795	1,262	2,286	386	0
Univ of Texas at Austin	228,203	109,593	13,759	3,507	80,499	20,845
Univ of Texas at Dallas	12,075	5,888	1,266	740	2,799	1,382
Univ of Texas at El Paso	6,889	5,451	946	339	153	0
Private, total	201,571	111,234	6,607	12,626	19,001	52,103
Baylor Col of Dentistry	849	682	0	20	85	62
Baylor Col of Medicine	155,122	75,793	4,409	7,746	17,600	49,574
Baylor University	1,143	369	1	250	254	269
Rice University	26,267	19,997	1,211	3,616	0	1,443
Southern Methodist Univ	13,600E	11,000E	800E	300E	1,000E	500E
Texas Christian Univ	1,823	1,362	0	399	62	0
Texas Col of Osteo Med	2,767	2,031	186	295	0	255
Utah, total	187,076	126,619	17,049	7,377	29,237	6,794
Public, total	175,468	121,262	15,689	5,532	26,482	6,503
University of Utah	89,018	62,297	4,139	3,443	13,974	5,165
Utah State University	86,450	58,965	11,550	2,089	12,508	1,338
Private, total	11,608	5,357	1,360	1,845	2,755	291
Brigham Young University	11,608	5,357	1,360	1,845	2,755	291
Vermont, total	45,162	30,555	2,389	3,473	6,544	2,201
Public, total	45,162	30,555	2,389	3,473	6,544	2,201
U of VT & State Agr Coll	45,162	30,555	2,389	3,473	6,544	2,201
Virginia, total	321,547	170,128	54,703	25,965	46,627	24,124
Public, total	309,130	162,346	54,639	24,096	46,575	21,474
College of William & Mary	9,572	6,460	1,629	138	1,145	200
George Mason University	8,011	5,494	1,529	742	0	3,246
Old Dominion U Res Fdn	10,579	7,036	2,962	581	0	0
University of Virginia	96,815	58,801	6,960	6,406	13,215	11,433
VA Polytech Inst & St U	121,423	45,949	39,169	11,394	20,437	4,474
Virginia Commonwlth Univ	62,730	41,606	2,390	4,835	11,778	2,121
Private, total	12,417	7,782	64	1,869	52	2,650
Eastern VA Medical School	10,496	7,782	64	0	0	2,650
Institute of Textile Tech	1,921	0	0	1,869	52	0
Washington, total	312,169	230,237	9,474	24,738	37,428	10,292
Public, total	312,169	230,237	9,474	24,738	37,428	10,292
University of Washington	245,313	203,353	4,313	22,215	12,020	3,412
Washington State Univ	66,856	26,884	5,161	2,523	25,408	6,880
West Virginia, total	46,946	19,718	1,198	10,037	14,236	1,757
Public, total	46,946	19,718	1,198	10,037	14,236	1,757
Marshall University	1,270	1,244	0	0	26	0
W VA Schl Osteopathic Med	134	23	0	0	111	0
West Virginia University	45,542	18,451	1,198	10,037	14,099	1,757

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-29. R&D expenditures at doctorate-granting institutions, by State, control, and source of funds: fiscal year 1990

[Dollars in thousands]

State, control and institution	Total	Federal Government	State and local governments	Industry	Institutional funds	All other sources
Wisconsin, total	363,364	209,026	59,085	16,981	47,524	30,748
Public, total	325,480	185,577	57,900	12,553	43,952	25,498
Univ of Wis-Madison	309,841	178,862	52,319	12,123	42,045	24,492
Univ of Wis-Milwaukee	15,639	6,715	5,581	430	1,907	1,006
Private, total	37,884	23,449	1,185	4,428	3,572	5,250
Marquette University	3,262	1,855	0	1,239	168	0
Medical College of Wis	34,622	21,594	1,185	3,189	3,404	5,250
Wyoming, total	22,831	12,207	2,056	2,001	6,328	239
Public, total	22,831	12,207	2,056	2,001	6,328	239
University of Wyoming	22,831	12,207	2,056	2,001	6,328	239
Puerto Rico, total	44,071	24,413	7,380	316	10,008	1,954
Public, total	42,222	22,683	7,345	316	9,934	1,944
Univ of P R-Mayaguez	30,555	14,337	7,336	293	6,736	1,853
Univ of P R-Med Sci Cmpus	6,293	5,366	0	0	868	59
Univ of P R-Rio Piedras	5,374	2,980	9	23	2,330	32
Private, total	1,849	1,730	35	0	74	10
Catholic U of PR	286	265	21	0	0	0
Ponce School of Medicine	943	919	14	0	0	10
U Ctrl Del Caribe Esc Med	620	546	0	0	74	0

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table 8-30. R&D expenditures at doctorate-granting institutions, by geographic division, State, and science and engineering field: fiscal year 1990

[Dollars in thousands]

Division and State	Total	Engineering	Physical sciences	Environmental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
Total	16,057,003	2,638,425	1,736,378	1,013,979	710,857	8,666,523	245,018	686,246	359,577
New England	1,418,016	215,958	201,021	139,287	57,641	679,664	27,501	74,722	22,222
Connecticut	298,076	27,387	20,854	9,168	10,388	217,026	6,195	5,720	1,338
Maine	23,605	2,925	891	4,350	43	13,779	294	1,323	0
Massachusetts	898,808	165,852	163,345	91,495	36,836	341,402	16,967	64,159	18,752
New Hampshire	69,731	7,735	8,165	10,235	719	38,977	306	1,650	1,944
Rhode Island	82,634	11,063	6,741	23,613	9,403	27,471	2,493	1,850	0
Vermont	45,162	996	1,025	426	252	41,009	1,246	20	188
Middle Atlantic	2,560,015	423,182	255,761	94,183	158,063	1,440,434	53,637	109,859	24,896
New Jersey	319,797	54,557	41,797	19,438	21,963	141,242	12,611	23,100	5,089
New York	1,410,700	176,662	149,881	56,910	73,113	877,925	25,254	45,473	5,482
Pennsylvania	829,518	191,963	64,083	17,835	62,987	421,267	15,772	41,286	14,325
East North Central	2,236,182	396,362	247,176	81,297	65,938	1,172,529	39,681	132,116	101,083
Illinois	647,863	98,730	73,955	29,028	28,371	314,160	11,140	26,039	66,440
Indiana	240,696	37,329	47,888	2,656	8,681	126,102	4,846	9,733	3,461
Michigan	527,070	88,435	46,562	19,933	12,039	285,057	9,269	49,812	15,963
Ohio	457,189	128,334	45,353	4,907	8,549	230,205	5,406	21,360	13,075
Wisconsin	363,364	43,534	33,418	24,773	8,298	217,005	9,020	25,172	2,144
West North Central	1,069,658	119,552	70,835	28,800	37,096	747,995	12,304	35,535	17,541
Iowa	232,147	36,807	22,894	1,089	10,062	147,956	1,591	9,220	2,528
Kansas	114,651	12,562	10,192	6,478	1,237	70,408	1,833	2,128	9,813
Minnesota	292,046	27,943	16,577	8,802	16,440	204,590	6,042	11,245	407
Missouri	281,133	21,715	14,254	4,537	7,713	221,648	2,035	6,891	2,340
Nebraska	105,373	9,709	4,890	3,112	1,327	82,154	447	3,336	398
North Dakota	29,966	9,581	1,501	2,921	317	12,520	295	1,756	1,075
South Dakota	14,342	1,235	527	1,861	0	8,719	61	959	980
South Atlantic	2,955,904	614,881	304,322	179,311	203,447	1,439,902	35,538	132,447	46,056
Delaware	40,119	12,251	6,869	6,721	1,888	9,093	592	2,705	0
District of Columbia	112,146	9,601	14,105	571	6,981	72,405	1,049	6,729	705
Florida	433,413	68,242	41,177	46,081	9,491	208,911	9,132	18,349	32,030
Georgia	445,011	128,071	30,653	17,347	23,859	209,625	7,498	27,541	417
Maryland	977,593	249,787	151,302	63,559	115,832	350,607	6,773	28,151	11,582
North Carolina	441,860	46,673	21,907	13,949	15,615	318,475	3,215	21,662	364
South Carolina	137,269	23,388	9,277	9,778	8,686	72,858	2,413	10,231	638
Virginia	321,547	71,487	27,590	14,991	10,643	175,912	4,718	15,906	300
West Virginia	46,946	5,381	1,442	6,314	10,452	22,016	148	1,173	20
East South Central	647,786	119,483	48,715	11,116	15,075	411,103	8,656	18,790	14,848
Alabama	239,556	41,810	19,357	4,209	8,334	157,934	1,660	3,485	2,767
Kentucky	90,880	13,290	2,956	374	676	63,816	220	2,396	7,152
Mississippi	85,229	15,071	9,049	1,735	351	51,356	575	3,814	3,278
Tennessee	232,121	49,312	17,353	4,798	5,714	137,997	6,201	9,095	1,651
West South Central	1,510,365	216,877	131,498	132,334	42,254	849,824	9,256	57,080	71,242
Arkansas	48,861	7,059	3,496	130	1,235	33,930	459	2,062	490
Louisiana	207,038	28,249	11,178	15,252	5,685	134,000	1,229	8,476	2,969
Oklahoma	130,650	27,086	10,051	10,692	3,924	62,357	802	11,927	3,811
Texas	1,123,816	154,483	106,773	106,260	31,410	619,537	6,766	34,615	63,972
Mountain	981,830	230,308	140,978	109,959	29,009	399,590	13,604	39,031	19,351
Arizona	260,187	33,166	76,753	30,522	6,629	90,378	3,414	15,335	3,990
Colorado	249,958	48,154	31,482	32,451	6,098	112,196	7,850	10,672	1,055
Idaho	36,570	6,900	2,131	2,220	77	22,946	27	1,893	376
Montana	34,980	3,181	4,449	412	238	23,391	22	2,664	623
Nevada	38,301	2,866	1,054	18,542	13	12,418	43	2,869	496
New Mexico	151,927	72,217	7,646	8,312	10,769	47,037	854	2,373	2,719
Utah	187,076	61,914	15,331	14,454	4,448	79,008	1,112	2,416	8,393
Wyoming	22,831	1,910	2,132	3,046	737	12,216	282	809	1,699
Pacific	2,633,176	300,206	334,576	236,268	102,230	1,488,347	44,799	85,246	41,504
Alaska	65,571	6,280	13,761	24,879	212	17,454	0	2,985	0
California	2,007,361	258,048	264,661	141,338	87,005	1,150,125	36,058	60,968	9,158
Hawaii	76,525	1,505	17,953	24,188	899	22,662	279	3,157	5,882
Oregon	171,550	11,363	20,443	23,751	4,323	98,895	3,061	4,978	4,736
Washington	312,169	23,010	17,758	22,112	9,791	199,211	5,401	13,158	21,728
Outlying Areas	44,071	1,616	1,496	1,424	104	37,135	42	1,420	834

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

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Table B-31. R&D expenditures at doctorate-granting institutions, by State, control, and science and engineering field: fiscal year 1990

(Dollars in thousands)

State and Institution	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
United States, total	16,057,003	2,638,425	1,736,378	1,013,979	710,857	8,666,523	245,018	686,246	359,577
Public, total	10,587,079	1,753,625	1,070,882	759,644	353,922	5,685,813	162,538	508,898	291,757
Private, total	5,469,924	884,800	665,496	254,335	356,935	2,980,710	82,480	177,348	67,820
Alabama, total	239,556	41,810	19,357	4,209	8,334	157,934	1,660	3,485	2,767
Public, total	239,556	41,810	19,357	4,209	8,334	157,934	1,660	3,485	2,767
Auburn University	66,795	18,819	3,778	201	1,110	40,638	46	549	1,654
The University of Alabama	21,488	6,709	3,910	2,244	1,974	2,400	831	2,762	658
Univ Alabama Birmingham	110,603	4,317	553	4	902	104,185	574	68	0
Univ Alabama Huntsville	29,565	11,918	11,024	1,406	4,314	482	3	12	406
Univ of South Alabama	11,105	47	92	354	34	10,229	206	94	49
Alaska, total	65,571	6,280	13,761	24,879	212	17,454	0	2,985	0
Public, total	65,571	6,280	13,761	24,879	212	17,454	0	2,985	0
Univ of Alaska Fairbanks	65,571	6,280	13,761	24,879	212	17,454	0	2,985	0
Arizona, total	260,187	33,166	76,753	30,522	6,629	90,378	3,414	15,335	3,990
Public, total	260,187	33,166	76,753	30,522	6,629	90,378	3,414	15,335	3,990
Arizona State University	58,652	18,618	14,490	7,529	2,164	5,655	2,138	6,797	1,261
Northern Arizona Univ	5,902	328	540	596	207	2,656	650	594	331
University of Arizona	195,633	14,220	61,723	22,397	4,258	82,067	626	7,944	2,398
Arkansas, total	48,861	7,059	3,496	130	1,235	33,930	459	2,062	490
Public, total	48,861	7,059	3,496	130	1,235	33,930	459	2,062	490
U of Arkansas Med Sci Cam	11,898	0	0	0	0	11,898	0	0	0
Univ of Ark Fayetteville	36,963	7,059	3,496	130	1,235	22,032	459	2,062	490
California, total	2,007,361	258,048	264,661	141,338	87,005	1,150,125	36,058	60,968	9,158
Public, total	1,410,219	128,398	161,179	112,529	33,883	891,950	21,027	52,952	8,301
San Diego State Univ	22,524	4,142	1,568	445	1,676	9,086	1,349	964	3,294
U of California System	0	0	0	0	0	0	0	0	0
US Naval Postgrad School	17,391	5,575	2,477	3,558	1,644	0	0	2,748	1,389
Univ of Cal Berkeley	231,061	52,124	50,711	5,389	5,314	87,951	6,414	19,550	3,608
Univ of Cal Davis	198,075	7,794	7,851	1,100	1,130	177,754	522	1,924	0
Univ of Cal Irvine	78,074	4,568	12,300	193	4,076	53,261	0	3,666	10
Univ of Cal Los Angeles	246,795	24,213	23,136	12,215	7,394	157,626	6,681	15,530	0
Univ of Cal Riverside	54,892	0	4,044	1,519	654	47,431	191	1,053	0
Univ of Cal San Diego	237,032	7,454	30,989	73,805	8,743	111,314	2,617	2,110	0
Univ of Cal San Francisco	238,278	0	0	0	0	238,278	0	0	0
Univ of Cal Santa Barbara	59,750	22,214	15,216	9,611	2,496	2,608	2,789	4,816	0
Univ of Cal Santa Cruz	26,347	314	12,887	4,694	756	6,641	464	591	0
Private, total	597,142	129,650	103,482	28,809	53,122	258,175	15,031	8,016	857
Biola University	0	0	0	0	0	0	0	0	0
Cal Sch Prof Psych-Berkly	0	0	0	0	0	0	0	0	0
Cal Sch Prof Psych-Fresno	1,382	0	0	0	0	0	1,382	0	0
Cal Sch Prof Psych-L A	1,316	0	0	0	0	0	1,316	0	0
Cal Sch Prof Psych-S D	661	0[1]	0[1]	0[1]	0[1]	0[1]	661	0[1]	0[1]
California Inst of Tech	105,730	17,363	42,034	15,957	4,196	24,857	0	471	852
Chas R Drew U of Med & Sc	3,098[1]	0[1]	0[1]	0[1]	0[1]	2,438[1]	0[1]	660[1]	0[1]
Claremont Univ Ctr & Grad	583	0	0	0	184	0	183	216	0
Col Osteo Med of Pacific	9	0	0	0	0	9	0	0	0
Fielding Institute	0	0	0	0	0	0	0	0	0
Fuller Theological Sem	50	0	0	0	0	0	50	0	0
Loma Linda University	7,547	0	0	0	0	7,461	0	86	0
Rand Grad Inst Pol Stdies	0	0	0	0	0	0	0	0	0
Santa Clara University	1,569	726	120	0	168	286	17	252	0
Stanford University	305,700[1]	83,694[1]	53,844[1]	5,645[1]	16,642[1]	138,546[1]	4,397[1]	2,932[1]	0[1]
The Wright Institute	0	0	0	0	0	0	0	0	0
US International Univ	93	0	0	0	0	0	93	0	0
Univ of Southern Cal	169,102	27,713	7,463	7,207	31,932	83,856	7,527	3,399	5
University of the Pacific	897	154[1]	21[1]	0[1]	0[1]	722[1]	0[1]	0[1]	0[1]

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-31. R&D expenditures at doctorate-granting institutions, by State, control, and science and engineering field: fiscal year 1990

[Dollars in thousands]

State and Institution	Total	Engineering	Physical sciences	Environmental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
Colorado, total	249,958	48,154	31,482	32,451	6,098	112,196	7,850	10,672	1,055
Public, total	239,856	42,783	28,395	32,451	6,035	111,834	6,807	10,496	1,055
Colorado School of Mines	10,943	6,097	2,283	601	724	0	0	192	1,046
Colorado State University	73,967	16,026	4,658	8,207	1,023	36,345	1,607	6,092	9
Univ of Northern Colorado	223	0	16	0	90	91	22	4	0
Univ. of Colorado	154,723	20,660	21,438	23,643	4,198	75,398	5,178	4,208	0
Private, total	10,102	5,371	3,087	0	63	362	1,043	176	0
University of Denver	10,102	5,371	3,087	0	63	362	1,043	176	0
Connecticut, total	298,076	27,387	20,854	9,168	10,388	217,026	6,195	5,720	1,338
Public, total	113,349	20,655	3,937	6,796	2,420	72,266	2,912	3,025	1,338
University of Connecticut	113,349	20,655	3,937	6,796	2,420	72,266	2,912	3,025	1,338
Private, total	184,727	6,732	16,917	2,372	7,968	144,760	3,283	2,695	0
Wesleyan University	4,021	0[1]	1,526[1]	43[1]	648[1]	1,667[1]	102[1]	35[1]	0[1]
Yale University	180,706	6,732	15,391	2,329	7,320	143,093	3,181	2,660	0
Delaware, total	40,119	12,251	6,869	6,721	1,888	9,093	592	2,705	0
Public, total	40,119	12,251	6,869	6,721	1,888	9,093	592	2,705	0
University of Delaware	40,119	12,251	6,869	6,721	1,888	9,093	592	2,705	0
District of Columbia, total	112,146	9,601	14,105	571	6,981	72,405	1,049	6,729	705
Private, total	112,146	9,601	14,105	571	6,981	72,405	1,049	6,729	705
American University	4,127	0	1,145	0	67	1,085	154	1,676	0
Catholic Univ of America	7,398	1,586	4,305	0	1	701	586	219	0
George Washington Univ	32,372	5,898	955	35	5,623	19,240	165	402	54
Georgetown University	50,867	0	3,998	388	1,251	41,120	70	3,389	651
Howard University	17,382	2,117[1]	3,702[1]	148[1]	391	10,259[1]	74[1]	1,043[1]	0[1]
Florida, total	433,413	68,242	41,177	46,081	9,491	208,911	9,132	18,349	32,030
Public, total	330,465	64,698	38,625	24,669	8,912	139,226	7,408	16,527	30,400
Florida A & M University	15,847	1,485	2,080	0[E]	293	7,539[E]	0	4,450	0
Florida Atlantic Univ	4,985	2,482	489	0	114	1,218	565	117	0
Florida State University	62,933	965	13,839	7,996	3,027	7,866	3,166	6,785	19,289
Univ of Central Florida	30,618	4,220	7,693	7,084	706	398	205	453	9,859
Univ of South Florida	76,404	24,961	2,720	5,063	291	40,589	1,358	1,422	0
University of Florida	139,678	30,585	11,804	4,526	4,481	81,616	2,114	3,300	1,252
Private, total	102,948	3,544	2,552	21,412	579	69,685	1,724	1,822	1,630
Florida Inst of Tech	7,003	1,633	1,050	1,544	143	1,287	95	8	1,243
Nova University	1,601	0	96	1,242	0	3	210	6	44
University of Miami	94,344	1,911	1,406	18,626	436	68,395	1,419	1,808	343
Georgia, total	445,011	128,071	30,653	17,347	23,859	209,625	7,498	27,541	417
Public, total	345,929	120,677	24,343	17,341	23,217	127,880	6,978	25,076	417
Georgia Institute of Tech	168,193	116,867	15,314	10,257	16,660	2,153	1,696	5,246	0
Georgia State University	8,942	0	2,323	347	1,004	1,933	1,626	1,292	417
Medical Col of Georgia	12,052	0	0	0	0	12,052	0	0	0
University of Georgia	156,742	3,810	6,706	6,737	5,553	111,742	3,656	18,538	0
Private, total	99,082	7,394	6,310	6	642	81,745	520	2,465	0
Clark Atlanta University	0[1]	0[1]	0[1]	0[1]	0[1]	0[1]	0[1]	0[1]	0[1]
Emory University	82,774	0	4,631	6	272	74,880	520	2,465	0
Inst Paper Sci and Tech	5,761	3,240	1,551	0	370	600	0	0	0
Mercer University	4,656	4,154	128	0	0	374	0	0	0
Morehouse School of Med	5,891	0[1]	0[1]	0[1]	0[1]	5,891[1]	0[1]	0[1]	0[1]

See explanatory information, if any, and SOURCE(S) at end of table.

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Table B-31. R&D expenditures at doctorate-granting institutions, by State, control, and science and engineering field: fiscal year 1990

[Dollars in thousands]

State and Institution	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
Hawaii, total	76,525	1,505	17,953	24,188	899	22,662	279	3,157	5,882
Public, total	76,525	1,505	17,953	24,188	899	22,662	279	3,157	5,882
Univ of Hawaii-Manoa	76,525	1,505	17,953	24,188	899	22,662	279	3,157	5,882
Idaho, total	36,570	6,900	2,131	2,220	77	22,946	27	1,893	376
Public, total	36,570	6,900	2,131	2,220	77	22,946	27	1,893	376
Idaho State University	1,634	181	283	214	77	774	3	45	57
University of Idaho	34,936	6,719	1,848	2,006	0	22,172	24	1,848	319
Illinois, total	647,863	98,730	73,955	29,028	28,371	314,160	11,140	26,039	66,440
Public, total	350,764	76,598	34,981	23,310	23,135	123,241	6,611	19,396	43,492
Illinois State University	2,951	0	423	0	216	632	16	1,663	1
Northern Illinois Univ	8,930	4221	1,9431	5451	6741	2,2921	2851	2,7691	01
Southern Ill U-Carbondale	25,873	4,193	1,153	895	2,335	12,853	503	1,411	2,530
Univ of Ill Chicago	85,268	5,486	8,204	1,121	1,904	59,462	275	3,309	5,507
Univ of Ill Urbana	227,742	66,497	23,258	20,749	18,006	48,002	5,532	10,244	35,454
Private, total	297,099	22,132	38,974	5,718	5,236	190,919	4,529	6,643	22,948
Chicago Col of Osteo Med	1,161	0	0	0	0	1,161	0	0	0
De Paul University	972	0	79	0	40	171	612	66	4
Illinois Inst of Tech	6,793	4,725	751	670	328	256	63	0	0
Loyola Univ - Chicago	12,260	0	286	0	102	10,236	944	689	3
Northwestern University	131,979	17,407	11,770	959	1,844	74,268	981	1,809	22,941
Rush University	21,284	0	0	0	0	20,363	921	0	0
U Hlth Sci/Chcgo Med Sch	4,695	0	0	0	0	4,695	0	0	0
University of Chicago	117,955	0	26,088	4,089	2,922	79,769	1,008	4,079	0
Indiana, total	240,696	37,329	47,888	2,656	8,681	126,102	4,846	9,733	3,461
Public, total	221,323	32,699	37,153	2,609	8,238	123,074	4,696	9,663	3,191
Ball State University	850	102	69	52	117	384	85	36	5
Indiana State University	903	0	85	120	33	587	1	77	0
Indiana University	89,191	131	22,532	555	2,702	55,502	3,089	2,943	1,737
Purdue University	130,379	32,466	14,467	1,882	5,386	66,601	1,521	6,607	1,449
Private, total	19,373	4,630	10,735	47	443	3,028	150	70	270
University of Notre Dame	19,373	4,630	10,735	47	443	3,028	150	70	270
Iowa, total	232,147	36,807	22,894	1,089	10,062	147,956	1,591	9,220	2,528
Public, total	232,080	36,807	22,894	1,089	10,062	147,889	1,591	9,220	2,528
Iowa St U of Sci & Tech	115,945	26,974	5,396	548	8,314	65,403	541	6,289	2,480
Univ of Northern Iowa	357	126	0	1	3	100	41	38	48
University of Iowa	115,778	9,707	17,498	540	1,745	82,386	1,009	2,893	0
Private, total	67	0	0	0	0	67	0	0	0
Univ Osteo Med & Hlth Sci	67	0	0	0	0	67	0	0	0
Kansas, total	114,651	12,562	10,192	6,478	1,237	70,408	1,833	2,128	9,813
Public, total	114,651	12,562	10,192	6,478	1,237	70,408	1,833	2,128	9,813
Kans St U - Ag & App Sci	50,311	6,186	3,287	251	673	37,289	366	1,652	607
University of Kansas	61,144	4,318	6,635	6,196	437	32,597	1,426	329	9,206
Wichita State University	3,196	2,058	270	31	127	522	41	147	0
Kentucky, total	90,880	13,290	2,956	374	676	63,816	220	2,396	7,152
Public, total	90,880	13,290	2,956	374	676	63,816	220	2,396	7,152
University of Kentucky	74,959	12,172	1,827	131	588	51,789	218	1,082	7,152
University of Louisville	15,921	1,118	1,129	243	88	12,027	2	1,314	0

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-31. R&D expenditures at doctorate-granting institutions, by State, control, and science and engineering field: fiscal year 1990

[Dollars in thousands]

State and institution	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
Louisiana, total	207,038	28,249	11,178	15,252	5,685	134,000	1,229	8,476	2,969
Public, total	148,729	25,662	9,717	15,046	4,981	86,105	882	4,636	1,700
Louisiana State Univ	135,849	20,890	9,164	14,845	1,954	83,104	795	4,036	1,061
Louisiana Tech University	3,894	3,019	1	0	0	874	0	0	0
Northeast Louisiana Univ	667	17	0	98	94	458	0	0	0
Univ of Southwestern LA	8,319	1,736	552	103	2,933	1,669	87	600	639
Private, total	58,309	2,587	1,461	206	704	47,895	347	3,840	1,269
Tulane University	56,407	2,587	1,043	206	704	46,411	347	3,840	1,269
Xavier University of LA	1,902	0	418	0	0	1,484	0	0	0
Maine, total	23,605	2,925	891	4,350	43	13,779	294	1,323	0
Public, total	23,605	2,925	891	4,350	43	13,779	294	1,323	0
Univ of Maine Orono	23,605	2,925	891	4,350	43	13,779	294	1,323	0
Maryland, total	977,593	249,787	151,302	63,559	115,832	350,607	6,773	28,151	11,582
Public, total	308,678	44,994	57,958	22,147	18,790	142,000	5,405	17,384	0
U of MD Baltimore County	5,385	1,011	1,581	0	571	1,135	411	676	0
U of MD Center For EES	15,652	0	0	15,652	0	0	0	0	0
U of MD Eastern Shore	1,850	19	121	58	43	1,542	0	67	0
Unif Serv Univ of Hlth Sc	36,080	0	0	0	0	36,080	0	0	0
Univ of MD Balt Prof Sch	83,689	0	0	0	0	83,689	0	0	0
Univ of MD College Park	166,022	43,964	56,256	6,437	18,176	19,554	4,994	16,641	0
Private, total	668,915	204,793	93,344	41,412	97,042	208,607	1,368	10,767	11,582
Johns Hopkins Univ	668,915	204,793	93,344	41,412	97,042	208,607	1,368	10,767	11,582
Massachusetts, total	898,808	165,852	163,345	91,495	36,836	341,402	16,967	64,159	18,752
Public, total	113,103	12,358	15,721	7,398	10,675	56,470	3,406	4,694	2,381
Univ of Massachusetts	101,812	9,239	12,984	5,979	9,775	54,677	3,406	4,680	1,072
University of Lowell	11,291	3,119	2,737	1,419	900	1,793	0	14	1,309
Private, total	785,705	153,494	147,624	84,097	26,161	284,932	13,561	59,465	16,371
Boston College	8,052	0	3,094	394	3,649	500	69	346	0
Boston University	73,655	3,723	8,956	115	1,063	54,067	482	1,636	3,613
Brandeis University	30,881	0	3,339	0	954	14,303	1,224	11,061	0
Clark University	1,281	0	590	299	88	70	234	0	0
Harvard University	220,812	998	28,340	6,303	3,909	136,522	2,064	39,668	3,008
Mass Col Phar/Allied Hlth	73	0	0	0	0	73	0	0	0
Mass Inst of Technology	311,767	127,004	98,119	12,247	14,697	37,711	7,856	4,645	9,488
Northeastern University	14,347	5,227	3,291	0	1,177	3,372	618	400	262
Smith College	1,398	0	188	187	123	304	160	436	0
Tufts University	47,009	2,117	1,383	4,148	174	37,300	854	1,033	0
Woods Hole Ocngrphic Inst	71,747	11,343	0	60,404	0	0	0	0	0
Worcester Poly Institute	4,683	3,082	324	0	327	710	0	240	0
Michigan, total	527,070	88,435	46,562	19,933	12,039	285,057	9,269	49,812	15,963
Public, total	525,150	87,372	46,386	19,931	12,038	284,894	9,177	49,457	15,895
Central Michigan Univ	1,071	118	177	62	277	210	91	11	125
Michigan State University	126,987	14,650	20,898	1,758	478	73,035	2,930	6,622	6,616
Michigan Tech University	16,037	10,366	1,296	324	77	2,990	0	975	9
Oakland University	4,102	797	653	0	387	2,213	481	41	0
University of Michigan	310,578	53,905	15,329	17,154	10,142	162,379	5,388	39,203	7,078
Wayne State University	62,455	5,951	7,900	0	398	43,871	716	1,597	2,022
Western Michigan Univ	3,920	1,585	133	633	279	196	4	1,045	45
Private, total	1,920	1,063	176	2	1	163	92	355	68
Andrews University	394	2	5	2	1	73	0	311	0
University of Detroit	1,526	1,061	171	0	0	90	92	44	68

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-31. R&D expenditures at doctorate-granting institutions, by State, control, and science and engineering field: fiscal year 1990

[Dollars in thousands]

State and Institution	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
Minnesota, total	292,046	27,943	16,577	8,802	16,440	204,590	6,042	11,245	407
Public, total	292,046	27,943	16,577	8,802	16,440	204,590	6,042	11,245	407
University of Minnesota	292,046	27,943	16,577	8,802	16,440	204,590	6,042	11,245	407
Private, total	0	0	0	0	0	0	0	0	0
Mayo Grad School of Med	0	0	0	0	0	0	0	0	0
Mississippi, total	85,229	15,071	9,049	1,735	351	51,356	575	3,814	3,278
Public, total	85,229	15,071	9,049	1,735	351	51,356	575	3,814	3,278
Mississippi State Univ	58,492	12,433	1,644	1,318	112	36,357	0	3,350	3,278
Univ of Sthrn Mississippi	4,666	152	3,314	417	234	350	190	9	0
University of Mississippi	22,071	2,486	4,091	0	5	14,649	385	455	0
Missouri, total	281,133	21,715	14,254	4,537	7,713	221,648	2,035	6,891	2,340
Public, total	112,188	19,020	7,520	1,823	2,358	71,690	999	6,566	2,212
Univ of Missouri Columbia	84,311	9,738	1,997	935	271	64,257	927	5,694	492
Univ of Missouri Kan City	8,310	0	520	69	1,439	5,420	6	528	328
Univ of Missouri Rolla	14,285	9,207	2,792	497	490	296	14	16	973
Univ of Missouri St Louis	2,291	0	1,008	0	58	469	52	328	376
Univ of Missouri Sys Off	2,991	75	1,203	322	100	1,248	0	0	43
Private, total	168,945	2,695	6,734	2,714	5,355	149,958	1,036	325	128
Kirksville Col Osteo Med	539	0	0	0	0	538	0	1	0
St Louis University	17,157	0	180	715	47	16,083	0	4	128
Univ of Health Sciences	0	0	0	0	0	0	0	0	0
Washington University	151,249	2,695	6,554	1,999	5,308	133,337	1,036	320	0
Montana, total	34,980	3,181	4,449	412	238	23,391	22	2,664	623
Public, total	34,980	3,181	4,449	412	238	23,391	22	2,664	623
Montana State University	27,648	2,871	4,410	292	215	18,593	7	1,260	0
University of Montana	7,332	310	39	120	23	4,798	15	1,404	623
Nebraska, total	105,373	9,709	4,890	3,112	1,327	82,154	447	3,336	398
Public, total	96,444	9,709	4,890	3,112	1,327	73,225	447	3,336	398
U of Neb Med Ctr at Omaha	17,844	0	0	0	0	17,844	0	0	0
Univ of Nebraska at Omaha	1,002	0	248	116	11	32	29	562	4
Univ of Nebraska-Lincoln	77,598	9,709	4,642	2,996	1,316	55,349	418	2,774	394
Private, total	8,929	0	0	0	0	8,929	0	0	0
Creighton University	8,929	0	0	0	0	8,929	0	0	0
Nevada, total	38,301	2,866	1,054	18,542	13	12,418	43	2,869	496
Public, total	38,301	2,866	1,054	18,542	13	12,418	43	2,869	496
Desert Research Institute	16,852	0	0	14,118	0	1,054	0	1,680	0
Univ of Nevada - Reno	21,449	2,866	1,054	4,424	13	11,364	43	1,189	496
New Hampshire, total	69,731	7,735	8,165	10,235	719	38,977	306	1,650	1,944
Public, total	25,994	2,334	5,668	9,309	260	5,538	105	1,123	1,657
Univ of New Hampshire	25,994	2,334	5,668	9,309	260	5,538	105	1,123	1,657
Private, total	43,737	5,401	2,497	926	459	33,439	201	527	287
Dartmouth College	43,737	5,401E	2,497E	926E	459E	33,439E	201E	527E	287E

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-31. R&D expenditures at doctorate-granting institutions, by State, control, and science and engineering field: fiscal year 1990

(Dollars in thousands)

State and Institution	Total	Engineering	Physical sciences	Environmental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
New Jersey, total	319,797	54,557	41,797	19,438	21,963	141,242	12,611	23,100	5,089
Public, total	217,439	26,204	17,544	10,871	14,875	123,412	6,198	13,246	5,089
N J Inst of Technology	15,225	4,510	271	4,922	2,086	0	0	241	3,195
Rutgers the St Univ of NJ	137,985	21,694	17,273	5,949	12,789	59,183	6,198	13,005	1,894
Univ of Med & Dent of N J	64,229	0	0	0	0	64,229	0	0	0
Private, total	102,358	28,353	24,253	8,567	7,088	17,830	6,413	9,854	0
Fairleigh Dickinson Univ	3,183	79	0	2,297	26	181	524	76	0
Princeton University	91,514	23,048	22,819	6,270	7,061	17,597	5,015	9,704	0
Seton Hall University	1,515	01	514	01	11	521	874	741	01
Stevens Institute of Tech	6,146	5,226	920	0	0	0	0	0	0
New Mexico, total	151,927	72,217	7,646	8,312	10,769	47,037	854	2,373	2,719
Public, total	151,927	72,217	7,646	8,312	10,769	47,037	854	2,373	2,719
N Mex Inst Mining & Tech	22,911	16,090	1,877	4,576	243	125	0	0	0
New Mexico State Univ	71,288	33,723	2,690	2,108	9,964	19,797	302	372	330
University of New Mexico	57,728	20,402	3,079	1,628	562	27,115	552	2,001	2,389
New York, total	1,410,700	176,662	149,881	56,910	73,113	877,925	25,254	45,473	5,482
Public, total	325,119	35,380	41,571	22,968	10,414	185,573	10,703	16,017	2,493
CUNY City College	12,973	2,762	5,423	259	280	3,390	257	162	440
CUNY Grad Sch & Univ Ctr	3,858	0	0	0	1,046	1,522	774	512	4
CUNY Hunter College	6,928	0	2,657	338	108	2,677	845	249	54
SUNY Col of Env Sci & For	18,671	6,240	1,538	2,177	359	7,940	0	409	8
SUNY Hlth Sci Ctr - Brkln	22,873	0	0	0	0	22,873	0	0	0
SUNY Hlth Sci Ctr - Syrcs	35,193	0	0	0	0	35,193	0	0	0
SUNY St Coll of Optometry	483	0	0	0	0	483	0	0	0
SUNY at Albany	22,034	0	2,303	8,881	914	2,928	2,797	4,211	0
SUNY at Binghamton	10,680	733	1,820	619	548	1,918	2,186	2,856	0
SUNY at Buffalo	109,190	23,166	6,952	820	3,492	66,568	2,794	4,421	977
SUNY at Stony Brook	82,236	2,479	20,878	9,874	3,667	40,081	1,050	3,197	1,010
Private, total	1,085,581	141,282	108,310	33,942	62,699	692,352	14,551	29,456	2,989
Adelphi University	633	0	489	0	0	85	59	0	0
Albany Med Ctr Grad Sch	9,431	0	0	0	0	9,431	0	0	0
Alfred University	4,067	4,067	0	0	0	0	0	0	0
CUNY Mt Sinai Sch of Med	63,752	0	0	0	0	63,752	0	0	0
Clarkson University	8,395	5,381	2,120	0	416	334	8	0	133
Columbia U Teachers Col	803	0	0	0	39	0	556	208	0
Columbia Univ Main Div	182,769	17,647	16,361	24,529	4,462	113,392	1,261	5,117	0
Cornell University	300,144	39,663	44,887	6,215	27,146	166,595	2,909	12,049	680
Fordham University	2,501	0	209	1	66	707	63	1,455	0
Hofstra University	515	92	0	0	29	271	0	123	0
Long Island University	171	0	34	22	4	41	27	43	0
New Sch For Soc Research	1,026	0	0	0	0	0	318	708	0
New York Inst Technology	3,087	743	286	0	1,486	572	0	0	0
New York Medical College	13,244	0	0	0	0	13,244	0	0	0
New York University	108,511	0	3,110	139	10,968	84,854	3,605	4,532	1,303
Polytechnic University	10,919	7,864	2,614	0	49	0	0	39	353
Rensselaer Polytech Inst	47,363	33,993	6,263	1,189	3,788	1,326	134	293	377
Rockefeller University	75,245	0	11,661	0	866	62,718	0	0	0
St John's University (NY)	759	0	9	0	0	659	91	0	0
Syracuse University	33,811	7,560	5,968	1,347	10,647	4,619	486	3,183	1
Union College (NY)	5,459	1,414	970	206	654	706	303	1,206	0
University of Rochester	129,011	22,858	13,329	294	2,079	85,078	4,731	500	142
Yeshiva University	83,968	0	0	0	0	83,968	0	0	0
North Carolina, total	441,860	46,673	21,907	13,949	15,615	318,475	3,215	21,662	364
Public, total	261,498	40,181	12,219	11,429	12,769	168,530	1,616	14,608	146
East Carolina University	6,098	0	105	936	0	4,440	1	565	51
N C State Univ at Raleigh	131,133	40,181	5,611	5,301	4,773	71,258	219	3,790	0
Univ of N C at Greensboro	1,154	0	22	0	32	562	383	60	95
Univ of NC at Chapel Hill	123,113	0	6,481	5,192	7,964	92,270	1,013	10,193	0

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-31. R&D expenditures at doctorate-granting institutions, by State, control, and science and engineering field: fiscal year 1990

[Dollars in thousands]

State and Institution	Total	Engineering	Physical sciences	Environmental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
North Carolina, continued									
Private, total	180,362	6,492	9,688	2,520	2,846	149,945	1,599	7,054	218
Duke University	140,708	6,492	9,085	2,520	2,696	111,309	1,558	7,048	0
Wake Forest University	39,654	0	603	0	150	38,636	41	6	218
North Dakota, total	29,966	9,581	1,501	2,921	317	12,520	295	1,756	1,075
Public, total	29,966	9,581	1,501	2,921	317	12,520	295	1,756	1,075
North Dakota State Univ	12,468	1,310	1,448	39	317	7,865	280	895	314
University of N Dakota	17,498	8,271	53	2,882	0	4,655	15	861	761
Ohio, total	457,189	128,334	45,353	4,907	8,549	230,205	5,406	21,360	13,075
Public, total	327,628	78,563	33,988	4,593	7,215	169,450	2,690	18,054	13,075
Air Force Inst of Tech/Nr	2,200	956	515	45	684	0	0	0	0
Bowling Green State Univ	3,400	0	1,095	44	157	1,179	469	61	395
Cleveland State Univ	8,699	3,950	716	13	25	63	39	3,893	0
Kent State University	7,172	77	3,375	198	1,415	1,370	234	368	135
Med Col of Ohio at Toledo	7,159	0	0	0	0	7,159	0	0	0
Miami University (Ohio)	2,203	581	622	88	31	557	200	306	369
NE Ohio Univ Med School	1,409	0	0	0	0	1,409	0	0	0
Ohio State University	178,569	43,810	12,802	3,685	2,828	93,307	395	12,383	9,359
Ohio University	12,982	5,766	1,661	141	28	4,921	365	100	0
University of Akron	10,372	4,435	4,748	8	347	169	196	469	0
University of Cincinnati	74,461	14,150	4,669	179	476	51,495	324	351	2,817
University of Toledo	5,551	2,750	1,457	21	99	1,018	184	22	0
Wright State University	13,451	2,611	2,328	171	1,153	6,803	284	101	0
Private, total	129,561	49,771	11,365	314	1,334	80,755	2,716	3,306	0
Antioch University	0	0	0	0	0	0	0	0	0
Case Western Reserve Univ	93,384	19,049E	10,022E	244E	207E	60,411E	263E	3,188E	0E
Union Institute	0	0	0	0	0	0	0	0	0
University of Dayton	36,177	30,722	1,343	70	1,127	344	2,453	118	0
Oklahoma, total	130,650	27,086	10,051	10,692	3,924	62,357	802	11,927	3,811
Public, total	126,265	24,374	9,867	10,525	3,502	61,648	677	11,861	3,811
OSU College of Osteo Med	1,935	0	0	0	0	1,935	0	0	0
Oklahoma State University	65,685	15,639	4,837	1,469	1,058	32,289	318	6,866	3,209
University of Oklahoma	58,645	8,735	5,030	9,056	2,444	27,424	359	4,995	602
Private, total	4,385	2,712	184	167	422	709	125	66	0
Oral Roberts University	60	25	7	0	6	21	0	1	0
University of Tulsa	4,325	2,687	177	167	416	688	125	65	0
Oregon, total	171,550	11,363	20,443	23,751	4,323	98,895	3,061	4,978	4,736
Public, total	162,288	9,722	16,659	21,586	2,651	98,895	3,061	4,978	4,736
Oregon Hlth Sciences Univ	41,420	0	0	0	0	40,070	1,350	0	0
Oregon State University	90,688	8,459	3,635	18,623	1,705	51,442	88	2,300	4,436
Portland State University	3,834	473	910	308	168	367	71	1,474	63
University of Oregon	26,346	790	12,114	2,655	778	7,016	1,552	1,204	237
Private, total	9,262	1,641	3,784	2,165	1,672	0	0	0	0
Oregon Grad Inst Sci/Tech	9,262	1,641	3,784	2,165	1,672	0	0	0	0
Pennsylvania, total	829,518	191,963	64,083	17,835	62,987	421,267	15,772	41,286	14,325
Public, total	424,091	124,248	32,250	14,362	5,630	211,149	7,390	20,877	8,185
Pennsylvania State Univ	256,926	118,070	16,625	14,095	3,553	83,743	4,565	8,943	7,332
Temple University	49,449	234	2,721	8	404	37,121	1,242	7,688	31
University of Pittsburgh	117,716	5,944	12,904	259	1,673	90,285	1,583	4,246	822

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-31. R&D expenditures at doctorate-granting institutions, by State, control, and science and engineering field: fiscal year 1990

[Dollars in thousands]

State and Institution	Total	Engineering	Physical sciences	Environmental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
Pennsylvania, continued									
Private, total	405,427	67,715	31,833	3,473	57,357	210,118	8,382	20,409	6,140
Bryn Mawr College	1,854	0	456	292	105	368	156	477	0
Carnegie-Mellon Univ	100,201	24,000	7,203	1,886	46,574	11,400	4,458	3,412	1,268
Drexel University	20,079	12,835	3,061	828	997	948	210	1,200	0
Duquesne University	558	0	162	0	15	325	0	56	0
Hahnemann University	13,595	0	0	0	0	12,134	1,461	0	0
Lehigh University	27,255	19,596	5,238	359	568	938	282	274	0
Phila Col Osteopathic Med	340	0	0	0	0	340	0	0	0
Phila Col of Pharm & Sci	1,153	0	0	0	0	1,153	0	0	0
The Medical Col of Penna	18,643	0	0	0	0	18,643	0	0	0
Thomas Jefferson Univ	30,969	0	0	0	0	30,969	0	0	0
Univ of Pennsylvania	189,390	10,832	15,494	108	8,983	132,599	1,546	14,956	4,872
Villanova University	1,390	452	219	0	115	301	269	34	0
Rhode Island, total	82,634	11,063	6,741	23,613	9,403	27,471	2,493	1,850	0
Public, total	35,846	3,907	568	18,944	114	9,817	943	1,553	0
Univ of Rhode Island	35,846	3,907	568	18,944	114	9,817	943	1,553	0
Private, total	46,788	7,156	6,173	4,669	9,289	17,654	1,550	297	0
Brown University	46,763	7,156	6,162	4,669	9,289	17,654	1,550	283	0
Providence College	25	0	11	0	0	0	0	14	0
South Carolina, total	137,269	23,388	9,277	9,778	8,686	72,858	2,413	10,231	638
Public, total	137,269	23,388	9,277	9,778	8,686	72,858	2,413	10,231	638
Clemson University	66,664	16,414	3,567	161	6,692	34,611	152	4,868	179
Med Univ of So Carolina	23,128	0	0	0	0	23,128	0	0	0
Univ of South Carolina	47,477	6,974	5,710	9,617	1,994	15,119	2,261	5,343	459
South Dakota, total	14,342	1,235	527	1,861	0	8,719	61	959	980
Public, total	14,342	1,235	527	1,861	0	8,719	61	959	980
S Dak Sch Mines & Tech	3,000	441	75	1,504	0	0	0	0	980
South Dakota State Univ	9,511	794	176	352	0	7,699	0	490	0
Univ of South Dakota	1,831	0	276	5	0	1,020	61	469	0
Tennessee, total	232,121	49,312	17,353	4,798	5,714	137,997	6,201	9,095	1,651
Public, total	150,396	42,025	10,672	4,679	5,290	74,088	4,457	7,534	1,651
East Tennessee State Univ	1,902	0	40	71	15	1,705	3	33	35
Memphis State University	12,073	1,100	312	2,946	355	2,465	3,139	1,756	0
Tenn Technological Univ	9,631	7,832	540	55	60	942	5	47	150
Univ. Of Tennessee System	126,790	33,093	9,780	1,607	4,860	68,976	1,310	5,698	1,466
Private, total	81,725	7,287	6,681	119	424	63,909	1,744	1,561	0
Meharry Medical College	6,663	0	0	0	0	6,663	0	0	0
Vanderbilt University	75,062	7,287	6,681	119	424	57,246	1,744	1,561	0
Texas, total	1,123,816	154,483	106,773	106,260	31,410	619,537	6,766	34,615	63,972
Public, total	922,245	148,271	95,581	96,348	22,870	456,770	5,307	33,596	63,502
East Texas State Univ	279	0	200	0	0	53	0	26	0
Lamar University	2,121	1,768	128	88	69	14	19	35	0
Sam Houston State Univ	380	0	239	12	1	90	12	26	0
Stephen F Austin St Univ	1,390	0	160	18	17	842	26	64	263
Texas A & M University	272,800	62,791	17,538	64,027	5,475	106,885	686	9,329	6,069
Texas Tech University	34,142	8,801	3,147	774	542	15,486	134	4,620	638
Texas Woman's University	1,336	0	38	0	2	1,294	1	1	0
U Tex Hlth Sci Ctr Houstn	45,707	0	0	519	0	44,345	0	843	0
U Tex Hlth Sci Ctr S Anto	45,663	0	0	0	0	45,663	0	0	0
U Tex Med Brnch Galveston	40,610	0	0	0	0	40,610	0	0	0
U of Houston	37,978	8,027	19,290	1,934	1,109	4,847	1,584	1,119	68
UT MD Anderson Cancer Ctr	91,283	0	4,106	0	2,358	84,819	0	0	0

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-31. R&D expenditures at doctorate-granting institutions, by State, control, and science and engineering field: fiscal year 1990

[Dollars in thousands]

State and Institution	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
Texas, continued									
Public, continued									
UT SW Medical Ctr-Dallas	85,919	0	0	0	0	85,919	0	0	0
Univ of North Texas	9,741	496	2,042	1,425	866	2,213	117	1,366	1,216
Univ of Tex at Arlington	5,729	2,849	1,476	111	628	398	31	169	67
Univ of Texas at Austin	228,203	58,968	40,985	25,285	10,543	19,785	2,259	15,335	55,043
Univ of Texas at Dallas	12,075	1,172	5,314	1,467	848	2,529	218	389	138
Univ of Texas at El Paso	6,889	3,399	918	688	412	978	220	274	0
Private, total	201,571	6,212	11,192	9,912	8,540	162,767	1,459	1,019	470
Baylor Col of Dentistry	849	0	0	0	0	849	0	0	0
Baylor Col of Medicine	155,122	0	0	0	0	155,122	0	0	0
Baylor University	1,143	0	899	37	90	112	0	5	0
Rice University	26,267	4,703	8,470	2,849	6,718	2,917	435	175	0
Southern Methodist Univ	13,600E	1,509I	1,138I	7,011I	1,723I	743I	170I	836I	470I
Texas Christian Univ	1,823	0	685	15	9	257	854	3	0
Texas Col of Osteo Med	2,767	0	0	0	0	2,767	0	0	0
Utah, total	187,076	61,914	15,331	14,454	4,448	79,008	1,112	2,416	8,393
Public, total	175,468	57,196	12,546	14,364	4,353	77,220	1,111	2,024	6,654
University of Utah	89,018	16,502	8,115	3,521	4,057	55,460	614	749	0
Utah State University	86,450	40,694	4,431	10,843	296	21,760	497	1,275	6,654
Private, total	11,608	4,718	2,785	90	95	1,788	1	392	1,739
Brigham Young University	11,608	4,718	2,785	90	95	1,788	1	392	1,739
Vermont, total	45,162	996	1,025	426	252	41,009	1,246	20	188
Public, total	45,162	996	1,025	426	252	41,009	1,246	20	188
U of VT & State Agr Coll	45,162	996	1,025	426	252	41,009	1,246	20	188
Virginia, total	321,547	71,487	27,590	14,991	10,643	175,912	4,718	15,906	300
Public, total	309,130	70,153	27,331	14,886	10,420	165,416	4,718	15,906	300
College of William & Mary	9,572	0	3,157	4,574	1,060	359	243	179	0
George Mason University	8,011	3,550	104	20	691	496	223	2,926	1
Old Dominion U Res Fdn	10,579	3,966	1,272	1,536	1,210	2,533	11	51	0
University of Virginia	96,815	18,116	11,212	5,322	3,902	51,023	2,406	4,535	299
VA Polytech Inst & St U	121,423	44,473	9,710	3,434	3,438	52,477	1,209	6,682	0
Virginia Commonwlth Univ	62,730	48	1,876	0	119	58,528	626	1,533	0
Private, total	12,417	1,334	259	105	223	10,496	0	0	0
Eastern VA Medical School	10,496	0	0	0	0	10,496	0	0	0
Institute of Textile Tech	1,921	1,334	259	105	223	0	0	0	0
Washington, total	312,169	23,010	17,758	22,112	9,791	199,211	5,401	13,158	21,728
Public, total	312,169	23,010	17,758	22,112	9,791	199,211	5,401	13,158	21,728
University of Washington	245,313	16,985	15,333	21,389	9,183	152,755	5,097	4,921	19,650
Washington State Univ	66,856	6,025	2,425	723	608	46,456	304	8,237	2,078
West Virginia, total	46,946	5,381	1,442	6,314	10,452	22,016	148	1,173	20
Public, total	46,946	5,381	1,442	6,314	10,452	22,016	148	1,173	20
Marshall University	1,270	0	5	0	0	1,257	5	3	0
W VA Schl Osteopathic Med	134	0	0	0	0	134	0	0	0
West Virginia University	45,542	5,381	1,437	6,314	10,452	20,625	143	1,170	20
Wisconsin, total	363,364	43,534	33,418	24,773	8,298	217,005	9,020	25,172	2,144
Public, total	325,480	42,494	32,713	24,773	8,108	181,250	9,014	25,133	1,995
Univ of Wis-Madison	309,841	39,781	29,538	22,033	7,871	178,337	8,553	22,661	1,067
Univ of Wis-Milwaukee	15,639	2,713	3,175	2,740	237	2,913	461	2,472	928

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-31. R&D expenditures at doctorate-granting institutions, by State, control, and science and engineering field: fiscal year 1990

[Dollars in thousands]

State and Institution	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
Wisconsin, continued									
Private, total	37,884	1,040	705	0	190	35,755	6	39	149
Marquette University	3,262	1,040	705	0	190	1,133	6	39	149
Medical College of Wis	34,622	0	0	0	0	34,622	0	0	0
Wyoming, total	22,831	1,910	2,132	3,046	737	12,216	282	809	1,699
Public, total	22,831	1,910	2,132	3,046	737	12,216	282	809	1,699
University of Wyoming	22,831	1,910	2,132	3,046	737	12,216	282	809	1,699
Puerto Rico, total	44,071	1,616	1,496	1,424	104	37,135	42	1,420	834
Public, total	42,222	1,616	1,210	1,424	104	35,572	42	1,420	834
Univ of P R-Mayaguez	30,555	1,616	171	1,424	30	27,165	22	0	127
Univ of P R-Med Sci Cmpus	6,293	0	0	0	0	6,293	0	0	0
Univ of P R-Rio Piedras	5,374	0	1,039	0	74	2,114	20	1,420	707
Private, total	1,849	0	286	0	0	1,563	0	0	0
Catholic U of PR	286	0	286	0	0	0	0	0	0
Ponce School of Medicine	943	0	0	0	0	943	0	0	0
U Ctrl Del Caribe Esc Med	620	0	0	0	0	620	0	0	0

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-32. Total R&D expenditures at universities and colleges: fiscal years 1983-90

[Dollars in thousands]

Institution ranking	Total							
	1990	1989	1988	1987	1986	1985	1984	1983
Total, all institutions	16,324,610	15,009,084	13,463,868	12,154,249	10,926,227	9,686,962	8,617,182	7,877,257
1 Johns Hopkins Univ 1/	668,915	648,395	557,016	510,896	440,844	398,630	350,891	303,115E
2 Mass Inst of Technology 2/	311,767	287,157	270,584	264,416	257,726	242,966	222,134	200,349
3 University of Michigan	310,578	280,905	250,169	224,890	187,859	163,713	155,987	132,864
4 Univ of Wis-Madison	309,841	285,982	271,418	254,493	231,099	208,425	184,190	168,282
5 Stanford University 2/	305,700I	285,994	277,504	240,885	223,162	199,185	174,675	157,745
6 Cornell University 2/	300,144	286,733	271,659	253,971	235,400	203,226	169,450	153,323
7 University of Minnesota	292,046	258,614	236,115	222,381	201,743	175,222	158,223	151,441
8 Texas A & M University	272,800	250,706	231,161	219,853	207,362E	184,899E	157,397E	136,885E
9 Pennsylvania State Univ	256,926	219,930	186,444	169,841	146,270	113,196	99,061	89,767
10 Univ of Cal Los Angeles	246,795	227,828	209,338	188,831	168,158	149,744	132,134	113,266
Total, 1st 10 insts.	3,275,512	3,032,244	2,763,408	2,546,457	2,289,623	2,037,306	1,800,142	1,607,037
11 University of Washington	245,313	221,712	190,735	187,062	186,572	163,962	146,947	133,523
12 Univ of Cal San Francisco	238,278	219,446	193,289	169,436	147,785	131,348	113,404	89,247
13 Univ of Cal San Diego	237,032	216,991	200,472	183,047	161,054	145,550	140,987	147,008
14 Univ of Cal Berkeley 2/	231,061	209,967	186,372	175,273	158,990	149,900	133,811	118,951
15 Univ of Texas at Austin	228,203	193,337	172,608	168,931	145,324	126,657	114,664	110,570
16 Univ of Ill Urbana	227,742	210,590	197,393	188,682	158,947	139,563	119,198	99,135
17 Harvard University	220,812	209,519	190,429	169,074	154,390	138,063	124,330E	118,602E
18 Univ of Cal Davis	198,075	180,297	154,655	143,798	123,788	114,862	105,791	98,118
19 University of Arizona	195,633	174,119	155,464	138,726	124,790	105,765	94,946	89,192
20 Univ of Pennsylvania	189,390	173,744	159,218	158,334	152,746	130,397	121,963	113,499
Total, 1st 20 insts.	5,487,051	5,041,966	4,564,043	4,228,820	3,804,009	3,383,373	3,016,183	2,724,882
21 Columbia Univ Main Div	182,769	172,145	160,976	149,904	145,416	136,577	124,292	113,847
22 Yale University	180,706	171,139	162,188	145,818	136,072	117,023	103,711	100,269
23 Ohio State University	178,569	173,485	154,652	123,246	112,623	103,350	87,402	83,108
24 Univ of Southern Cal	169,102	162,013	150,009	134,995	116,399	97,282	87,278	84,395
25 Georgia Institute of Tech	168,193	174,664	143,051	120,342	105,457	90,445	88,507	82,924
26 Univ of MD College Park	166,022	149,510	135,531	126,239	101,650	91,905	79,857	77,188E
27 University of Georgia	156,742	145,953	137,692	124,442	111,745	91,253	83,829	70,665
28 Baylor Col of Medicine	155,122	134,681	106,814	90,179	68,993	63,197	56,746	54,986
29 Univ. of Colorado	154,723	143,720	128,015	112,276	104,576	93,416	85,433	75,798
30 Washington University	151,249	128,419	117,829	103,419	90,226	80,233	77,392	69,357
Total, 1st 30 insts.	7,150,248	6,597,695	5,960,800	5,459,680	4,897,166	4,348,054	3,890,630	3,537,419
31 Duke University	140,708	131,090	113,968	89,556	78,831	68,899	61,025	55,040
32 University of Florida	139,678	125,770	107,177	104,245	95,527	91,298	85,057	73,467
33 Rutgers the St Univ of NJ	137,985	124,574	105,150	94,555	79,894	59,392	51,568	49,729
34 Louisiana State Univ	135,849	122,357	114,698	102,070	91,709	90,280	74,676	70,408
35 Northwestern University	131,979	118,991	102,755	88,920	80,178	72,337	68,246	51,075
36 N C State Univ at Raleigh	131,133	123,441	110,286	102,647	92,695	87,996	75,824	59,909
37 Purdue University	130,379	124,323	118,797	107,131	102,126	88,866	83,478	75,510
38 University of Rochester 1/	129,011	123,997	114,061	101,598	95,824	86,650	73,970	65,305
39 Michigan State University	126,987	121,456	116,320	111,810	100,861	92,515	85,426	79,043
40 Univ. Of Tennessee System	126,790	124,820	101,869	91,520	78,249	71,948	56,988	53,040
Total, 1st 40 insts.	8,480,747	7,838,514	7,065,881	6,453,732	5,793,060	5,158,235	4,606,888	4,169,945
41 Univ of NC at Chapel Hill	123,113	122,097	107,039	93,754	85,454	75,958	53,960	50,892
42 VA Polytech Inst & St U	121,423	104,266	89,955	80,552	75,450	61,966	53,113	47,802
43 University of Chicago 2/	117,955	109,429	98,541	91,879	88,026	79,929	77,022	75,514
44 University of Pittsburgh	117,716	111,265	98,609	84,183	74,059	63,796	53,540	47,313
45 Iowa St U of Sci & Tech 2/	115,945	103,174	86,726	78,351	72,642	67,276	62,472	64,861
46 University of Iowa	115,778	105,900	94,552	79,090	73,596	64,923	56,770	54,771
47 University of Connecticut	113,349	109,328	89,630	81,575	74,287	75,155	69,167	58,902
48 Univ Alabama Birmingham	110,603	100,666	85,030	72,692	59,401	47,167	40,407	31,311
49 SUNY at Buffalo	109,190	100,291	87,635	70,474	64,404	57,045	52,711	50,129
50 New York University	108,511	104,451	100,872	98,924	92,787	83,896	73,688	68,544
Total, 1st 50 insts.	9,634,330	8,909,381	8,004,470	7,285,206	6,553,166	5,835,346	5,199,738	4,719,784

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-32. Total R&D expenditures at universities and colleges: fiscal years 1983-90

[Dollars in thousands]

Institution ranking	Total							
	1990	1989	1988	1987	1986	1985	1984	1983
51 California Inst of Tech 2/	105,730	98,731	92,530	86,565	78,776	65,810	50,409	49,824
52 Univ of Massachusetts	101,812	110,644	93,117	79,814	73,453	60,771	53,965	48,380
53 Carnegie-Mellon Univ	100,201	101,635	94,051	83,763	71,920	60,292	53,787	43,174
54 University of Virginia	96,815	81,281	74,572	63,861	57,472	51,653	41,815	37,620
55 University of Miami	94,344	90,298	70,783	65,158	64,154	58,035	51,057	48,283
56 Case Western Reserve Univ	93,384	86,168	77,303	70,850	57,530E	51,598	47,217	42,691
57 Princeton University	91,514	82,914	76,891	65,089	51,789	46,027	40,877	37,017
58 UT MD Anderson Cancer Ctr	91,283	85,903	75,642	65,417	63,318	56,137	49,317	44,509
59 Oregon State University	90,688	91,355	88,953	82,786	78,168	74,768	67,320	62,723
60 Indiana University	89,191	81,793	73,526	65,341	59,160	54,796	47,645	44,331
Total, 1st 60 insts.	10,589,292	9,820,103	8,821,838	8,013,850	7,208,906	6,415,233	5,702,147	5,178,336
61 University of Utah	89,018	83,340	75,789	68,194	60,478	54,354	50,416	46,830
62 Utah State University	86,450	69,944	59,273	41,343	42,351	37,526	36,642	36,711
63 UT SW Medical Ctr-Dallas	85,919	79,920	70,392	62,907	52,619	46,671	42,461	36,456
64 Univ of Ill Chicago	85,268	83,359	75,925	64,701	54,846	48,734	44,544	44,497
65 Univ of Missouri Columbia	84,311	74,055	66,365	61,212	57,653	50,765	46,075	44,231
66 Yeshiva University	83,968	74,496	75,383	73,775	70,260	66,656	58,893	53,812
67 Univ of MD Balt Prof Sch	83,689	75,854	68,787	57,931	36,934	32,097I	27,261I	22,425I
68 Emory University	82,774	64,713	60,896	58,889	51,115	30,706	27,522	24,284
69 SUNY at Stony Brook	82,236	79,455	79,410	54,850	54,197	47,495	41,848	36,941
70 Univ of Cal Irvine	78,074	66,806	60,100	51,691	49,979	44,458	37,023	33,293
Total, 1st 70 insts.	11,430,999	10,572,015	9,514,155	8,609,341	7,739,338	6,874,695	6,114,832	5,557,816
71 Univ of Nebraska-Lincoln	77,598	68,281	60,788	56,066	55,158	47,809	42,920	44,597
72 Univ of Hawaii-Manoa	76,525	70,733	64,278	57,345	57,383	54,025	51,051	45,401
73 Univ of South Florida	76,404	60,973	40,396	38,633	11,707	9,186	8,251	6,502
74 Rockefeller University	75,245	73,945	68,588	66,760	63,216	59,159	55,353	52,000
75 Vanderbilt University	75,062	65,218	60,591	43,589	37,715	34,180	29,760	26,322
76 University of Kentucky	74,959	69,532	69,003	55,042	53,770	47,387	45,058	40,829
77 University of Cincinnati	74,461	69,831	60,479	55,804	44,368	42,709	39,747	35,195
78 Colorado State University	73,967	64,351	59,369	52,619	49,359	44,171	42,876	41,572
79 Boston University	73,655	66,325	61,505	58,299	53,225	44,135	39,272	32,421
80 Woods Hole Ocngrphic Inst	71,747	74,881	58,700	48,061	43,675	43,132	43,454	42,070
Total, 1st 80 insts.	12,180,622	11,256,085	10,117,852	9,139,559	8,208,914	7,300,588	6,512,574	5,924,725
81 New Mexico State Univ	71,288	60,930	61,001	58,672	51,917	46,198	41,646	41,579
82 Washington State Univ	66,856	55,173	51,319	48,865	46,392	45,878	38,304	36,878
83 Auburn University	66,795	53,814	52,737	48,045	47,930	36,279	29,977	26,176
84 Clemson University	66,664	56,699	49,375	46,495	38,963	32,526	29,900	27,643
85 Oklahoma State University	65,685	53,955	56,636	47,420	45,919	49,094	48,727	44,099I
86 Univ of Alaska Fairbanks	65,571	56,701	49,856E	47,432I	45,008I	42,584I	40,160I	37,736
87 Univ of Med & Dent of N J	64,229	54,451	42,027	32,222	30,322	23,521	20,113	18,831
88 CUNY Mt Sinai Sch of Med	63,752	56,856	49,727	46,137	40,193	37,750	31,273	28,561
89 Florida State University	62,933	55,245	50,679	46,420	44,179	34,969	29,840	22,767
90 Virginia Commonwlth Univ	62,730	52,193	42,951	42,329	38,729	35,221	25,761	26,235
Total, 1st 90 insts.	12,837,125	11,811,802	10,624,160	9,603,596	8,638,466	7,684,408	6,848,275	6,235,230
91 Wayne State University	62,455	59,521	50,509	39,335	33,589	27,941	26,386	23,990
92 University of Kansas	61,144	57,111	51,723	50,603	47,853	41,021I	34,192I	27,363I
93 Univ of Cal Santa Barbara	59,750	50,067	46,598	42,704	36,516	30,055	27,404	22,884
94 Arizona State University	58,652	44,044	39,510	38,763	33,580	28,953	22,048	22,294
95 University of Oklahoma	58,645	53,956	50,047	45,350	37,328	42,290	40,129	40,987
96 Mississippi State Univ	58,492	53,670	45,005	40,405	43,813	41,376	38,410	35,714
97 University of New Mexico	57,728	52,970	47,729E	49,764E	49,856	45,581	33,161	32,069I
98 Tulane University	56,407	45,195	42,619	38,393	34,871	28,144	23,919	22,440
99 Univ of Cal Riverside	54,892	53,213	52,983	51,158	47,881	44,233	40,233	37,236
100 Georgetown University	50,867	53,597	44,783	35,981	29,254	27,878	24,187	19,885
Total, 1st 100 insts.	13,416,157	12,335,146	11,095,666	10,036,052	9,033,007	8,041,880	7,158,344	6,520,092

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-32. Total R&D expenditures at universities and colleges: fiscal years 1983-90

[Dollars in thousands]

Institution ranking	Total							
	1990	1989	1988	1987	1986	1985	1984	1983
101 Kans St U - Ag & App Sci	50,311	47,302	43,174	40,587	40,708	37,233	35,598	35,130
102 Temple University	49,449	45,482	40,941	36,013	32,610	26,668	25,601	24,632
103 Univ of South Carolina	47,477	40,421	31,836	29,658	28,362	22,765	17,830	14,631
104 Rensselaer Polytech Inst	47,363	39,185	36,511	25,176	21,233	19,139	19,149	23,084
105 Tufts University	47,009	50,424	54,225	46,497	40,789I	35,082I	29,375I	23,668I
106 Brown University	46,763	43,564	41,556	38,110	31,906	28,344	25,771	22,805
107 U Tex Hlth Sci Ctr Houstn	45,707	46,860	43,345	35,158	32,564	26,566	20,526	19,362
108 U Tex Hlth Sci Ctr S Anto	45,663	42,501	39,673	34,476	33,165	29,845	25,911	24,743
109 West Virginia University	45,542	37,569	28,807	25,676	23,376	21,462	19,183	18,798
110 U of VT & State Agr Coll	45,162	42,743	36,815	31,347	29,699	27,606	22,268	18,805
Total, 1st 110 insts.	13,886,603	12,771,197	11,492,549	10,378,950	9,347,419	8,316,580	7,399,556	6,745,750
111 Dartmouth College	43,737	38,452	35,563	31,227	26,067I	20,908I	15,749	16,347
112 Oregon Hlth Sciences Univ	41,420	35,097	29,509	26,062	21,418	17,785	16,016	15,561
113 U Tex Med Brnch Galveston	40,610	38,717	33,047	24,351	23,312I	22,273	19,515	19,011
114 University of Delaware	40,119	37,194	32,023	31,581	28,798	25,605	21,343	19,080
115 Wake Forest University	39,654	37,156	30,568	23,596	20,703I	17,816I	14,931I	12,044I
116 U of Houston	37,978	34,229	26,803	24,378	22,053	16,011	14,007	13,102
117 Univ of Ark Fayetteville	36,963	32,842	28,104	27,435	28,566	24,536	21,925	21,908
118 University of Dayton	36,177	31,984	31,483	30,105	27,478	25,005	23,556	19,930
119 Unif Serv Univ of Hlth Sc	36,080	27,062	15,991	12,076	12,960	10,536	8,890	6,997
120 Univ of Rhode Island	35,846	36,219E	35,940	27,369	27,805I	28,241	23,481	23,240I
Total, 1st 120 insts.	14,275,187	13,120,149	11,791,580	10,637,230	9,586,581	8,523,298	7,578,969	6,912,970
121 SUNY Hlth Sci Ctr - Syrcs	35,193	31,125	24,541	21,186	18,065	18,301	18,361	15,756
122 University of Idaho	34,936	31,879	30,078	24,070	23,068	20,460	19,232	17,453
123 Medical College of Wis	34,622	34,951	33,231	30,218	21,356	19,859	18,015I	16,175I
124 Texas Tech University	34,142	33,612	28,722	27,876	25,068	18,588	16,592I	14,597
125 Syracuse University	33,811	35,543	33,643	30,348	27,289	24,340	16,859	17,565
126 George Washington Univ	32,372	30,284	23,522	24,320	20,927I	17,534	19,693	20,638
127 Thomas Jefferson Univ	30,969	29,405	24,231	20,357	12,402	11,969	10,593	15,580
128 Brandeis University	30,881	30,596	26,618	23,811I	21,006I	18,201	18,291	15,431
129 Univ of Central Florida	30,618	30,991	11,307	9,571I	7,835E	6,114	7,047I	7,980
130 Univ of P R-Mayaguez	30,555	29,343	27,091	24,491	22,728I	20,967I	19,206I	17,445I
Total, 1st 130 insts.	14,603,286	13,437,878	12,054,564	10,873,478	9,786,325	8,699,631	7,742,858	7,071,590
131 Univ Alabama Huntsville	29,565	26,186	18,628	11,158	7,284	5,415	4,242	3,662
132 Montana State University	27,648	25,968	25,227	23,093I	20,960	19,703	19,858	18,896
133 Lehigh University	27,255	26,004	27,089	24,893	20,294	17,558	15,731	14,463
134 Univ of Cal Santa Cruz	26,347	23,651	22,163	22,222	17,818	17,400	14,509	12,867
135 University of Oregon	26,346	22,476	18,567	16,815	16,202	14,445	13,423	11,985
136 Rice University	26,267	21,563	18,851	17,298I	15,747I	14,196	12,751I	11,306I
137 Univ of New Hampshire	25,994	23,720	22,095	19,701	18,263	18,772	16,116	13,954
138 Southern Ill U-Carbondale	25,873	23,357	20,310	18,654	18,814	18,371	15,581	10,474
139 Univ of Maine Orono	23,605	19,974	17,341	16,952	19,315	20,621	17,107	19,454
140 Med Univ of So Carolina	23,128	23,017	20,949	19,658	19,278	13,677	11,796	10,347
Total, 1st 140 insts.	14,865,314	13,673,794	12,265,784	11,063,922	9,960,300	8,859,789	7,883,972	7,198,998
141 N Mex Inst Mining & Tech	22,911	22,289	20,357	23,709	16,796	13,209I	9,622	8,685I
142 SUNY Hlth Sci Ctr - Brkln	22,873	20,523	18,374	17,008	15,557I	14,107I	12,657	13,072
143 University of Wyoming	22,831	23,310	20,429	17,316	18,663	16,075	15,735	15,119
144 San Diego State Univ	22,524	20,124	19,370	16,973	9,958	8,043	6,256	7,202
145 University of Mississippi	22,071	17,092	15,125	13,377	12,970	9,484	9,516	10,687E
146 SUNY at Albany	22,034	24,240	19,665	18,815	16,433	13,016	11,421	10,442
147 The University of Alabama	21,488	18,395	15,836	13,362	11,221	7,799	5,894I	3,990I
148 Univ of Nevada - Reno	21,449	18,141	17,867	15,171	13,114I	11,057I	9,000E	13,969
149 Rush University	21,284	21,741	19,827	16,342	13,969	11,293	11,788	12,122
150 Drexel University	20,079	17,983	16,045	15,803	14,247	11,817	7,897	5,896
Total, 1st 150 insts.	15,084,858	13,877,632	12,448,639	11,231,798	10,103,228	8,975,689	7,983,758	7,300,182

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-32. Total R&D expenditures at universities and colleges: fiscal years 1983-90

[Dollars in thousands]

Institution ranking	Total							
	1990	1989	1988	1987	1986	1985	1984	1983
151 University of Notre Dame	19,373	19,385	17,845	14,409	13,581	13,906	12,675	12,793
152 SUNY Col of Env Sci & For	18,671	17,221	12,917	11,690	11,249I	10,808	9,585I	8,363I
153 The Medical Col of Penna	18,643	20,542	15,277	11,081	9,775I	8,469I	7,163	4,377
154 U of Neb Med Ctr at Omaha	17,844	17,291	14,684	12,492	11,759	10,262	8,501	6,728
155 University of N Dakota	17,498	17,518	15,806	16,404	14,303I	12,202I	10,101I	8,000
156 US Naval Postgrad School	17,391	15,306	15,515	13,053	13,216	12,212	10,986I	9,761
157 Howard University	17,382	17,125I	16,870I	16,615	16,305	12,798	13,034	10,959
158 St Louis University	17,157	14,251	9,700	9,190I	8,684I	8,178I	7,672I	7,166
159 Desert Research Institute	16,852	16,005	14,798	12,899	11,421	9,442	8,513	7,535
160 Michigan Tech University	16,037	15,186	14,321	12,656	12,386	11,649	11,225	10,012
Total, 1st 160 insts.	15,261,706	14,047,462	12,596,372	11,362,287	10,225,907	9,085,615	8,083,213	7,385,876
161 University of Louisville	15,921	14,466	22,945	22,966	14,782	6,403	7,589	8,669
162 Florida A & M University	15,847	14,171	12,079	9,364	8,401I	7,439	9,784	6,929I
163 U of MD Center For EES	15,652	13,741	12,682	12,029	9,742	4,319	3,244	3,070
164 Univ of Wis-Milwaukee	15,639	13,428	12,424	11,079	10,383	9,068	8,499	7,851
165 N J Inst of Technology	15,225	11,402	8,327	10,418	8,579	4,094	2,168	1,843
166 Northeastern University	14,347	13,302	11,896	10,124	9,243	8,883	8,217I	7,553I
167 Univ of Missouri Rolla	14,285	17,692	18,823	14,712	14,027	10,392	9,445	8,214
168 Southern Methodist Univ	13,600E	9,363	6,814	4,938	4,459I	3,981	3,491	2,822
169 Hahnemann University	13,595	11,158	8,551	9,062	10,694	12,810	8,970	7,031
170 Wright State University	13,451	11,043	9,551	7,260	9,374	8,263	7,414	6,086
Total, 1st 170 insts.	15,409,268	14,177,228	12,720,462	11,474,239	10,325,591	9,161,267	8,152,034	7,445,944
171 New York Medical College	13,244	12,958	13,817	11,794	9,327	7,837	5,779	8,260
172 Ohio University	12,982	11,461	10,863	8,548	8,091	5,811	4,745	4,848
173 CUNY City College	12,973	11,724	10,392	9,079	8,393I	7,707	6,919	5,722
174 North Dakota State Univ	12,468	10,433	8,638	19,508	17,537	17,447I	17,358I	17,269
175 Loyola Univ - Chicago	12,260	11,303	8,327	7,123	6,375	5,364	5,035	4,775
176 Univ of Texas at Dallas	12,075	11,265	10,936	10,677	7,947	7,352	6,972	6,643
177 Memphis State University	12,073	9,892	8,201	7,132	5,315	4,072	1,881	1,370
178 Medical Col of Georgia	12,052	11,363	9,925	10,053	9,323	8,008	6,923	6,822
179 U of Arkansas Med Sci Cam	11,898	10,834	9,851	8,094	6,813	5,515	4,691	5,407
180 Brigham Young University	11,608	11,544	10,967	11,341	10,086I	8,832	7,639	5,260
Total, 1st 180 insts.	15,532,901	14,290,005	12,822,379	11,577,588	10,414,798	9,239,212	8,219,982	7,512,320
181 University of Lowell	11,291	11,242	10,903	8,364	8,453	5,940	3,980	3,543
182 Univ of South Alabama	11,105	10,503	8,578	7,668	7,574	7,477	6,022	4,912I
183 Colorado School of Mines	10,943	9,364	8,832	8,515	7,807	6,349	5,540	5,374
184 Polytechnic University	10,919	11,345	9,378	9,400	7,779	6,441	6,040	5,276
185 SUNY at Binghamton	10,680	9,270	8,926	8,541	8,322	7,101	6,112	6,441
186 Old Dominion U Res Fdn	10,579	9,107	7,252	6,572	5,934I	5,296I	4,658	4,035E
187 Eastern VA Medical School	10,496	8,125	6,614	4,320	5,441I	2,562I	1,683I	804
188 University of Akron	10,372	9,728	7,114	7,190	5,360	3,596	3,245	1,808
189 University of Denver	10,102	8,938	10,038	12,239	13,957	14,801E	15,645E	16,489E
190 San Jose State University	10,086	9,488	10,104	9,351I	8,598I	7,845I	7,092I	6,339I
Total, 1st 190 insts.	15,639,474	14,387,115	12,910,118	11,659,748	10,492,023	9,306,620	8,279,999	7,567,341
191 Univ of North Texas	9,741	9,121	7,038	5,724	4,789	3,865	5,251	5,674
192 Tenn Technological Univ	9,631	7,539	7,483	6,970	4,883I	2,796	1,425E	1,321E
193 College of William & Mary	9,572	7,633	8,031	6,694	5,923	10,788	5,873	2,621
194 South Dakota State Univ	9,511	8,472	8,622	8,279	7,882	6,286	5,790	7,764
195 Albany Med Ctr Grad Sch	9,431	9,827	11,694	13,287	12,869I	12,451I	12,033I	11,615I
196 Oregon Grad Inst Sci/Tech	9,262	8,825	8,470	6,926	6,109I	5,294I	4,479	3,931I
197 Georgia State University	8,942	7,000	5,843	5,258	4,900	1,973	2,177	1,906
198 Northern Illinois Univ	8,930	7,304	5,905	4,899	5,042	4,785I	4,528I	4,271
199 Creighton University	8,929	7,934	7,650	5,910I	4,171I	2,432	2,267	2,316
200 Cleveland State Univ	8,699	7,570	7,334	6,897	4,528	3,788	2,547	2,361
Total, 1st 200 insts.	15,732,122	14,468,340	12,988,188	11,730,592	10,551,119	9,361,078	8,326,369	7,611,121

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-32. Total R&D expenditures at universities and colleges: fiscal years 1983-90

(Dollars in thousands)

Institution ranking	Total							
	1990	1989	1988	1987	1986	1985	1984	1983
201 NC Ag & Tech State Univ	8,657	6,706	6,401	4,461	5,754	4,938	4,689	4,745
202 Clarkson University	8,392	7,523	7,804	7,442	6,975	4,612	3,850	4,015
203 Univ of Southwestern LA	8,319	6,817	5,092	5,017	4,695I	4,374	3,597I	821
204 Univ of Missouri Kan City	8,310	7,926	7,630	4,790	5,837	2,444	1,761	1,497
205 Boston College	8,052	6,152	6,137	5,099	4,926I	4,754	4,941I	5,127
206 George Mason University	8,011	4,220	3,834	4,368E	1,755I	1,143I	531	467I
207 Loma Linda University	7,547	5,248	6,496	7,469	5,959I	4,450	3,794I	3,139I
208 Catholic Univ of America	7,398	6,554	5,759	5,268	3,964	4,326	3,706	2,899
209 University of Montana	7,332	6,482	6,842	6,332	5,478I	4,624E	4,340I	4,056
210 Kent State University	7,172	5,534	5,086	4,573	3,662	3,855	3,057	2,347
Total, 1st 210 insts.	15,811,312	14,531,502	13,049,269	11,783,411	10,598,124	9,400,598	8,359,635	7,640,234
211 Med Col of Ohio at Toledo	7,159	6,809	5,495	7,652	7,267I	6,886I	6,505I	6,124I
212 Alabama A & M University	7,010	6,272	6,140	4,534	3,986I	3,439I	2,892	2,057
213 Florida Inst of Tech	7,003	3,531	2,505	1,918	1,886	2,091	1,764	1,520
214 CUNY Hunter College	6,928	6,526	6,437	6,943	5,858	3,859	3,175	3,631
215 Univ of Texas at El Paso	6,889	4,168	2,641	2,605	1,933	1,475	1,407	1,407
216 Illinois Inst of Tech	6,793	6,864	7,545	8,470	5,715	5,963	5,479	4,762
217 Meharry Medical College	6,663	6,564	5,228	4,797	4,137I	3,477I	2,817I	2,157
218 Univ of P R-Med Sci Cmpus	6,293	6,528	5,517	6,893	6,397I	5,901I	5,405I	4,909I
219 Stevens Institute of Tech	6,146	4,973	6,426	8,915	7,660I	6,407I	5,154	4,686
220 East Carolina University	6,098	5,241	4,679	3,771	3,858	3,095I	2,333	2,009
Total, 1st 220 insts.	15,878,294	14,588,978	13,101,882	11,839,909	10,646,821	9,443,191	8,396,563	7,673,496
221 Northern Arizona Univ	5,902	5,368	4,204	3,774	2,308	2,117	1,824	1,174
222 Morehouse School of Med	5,891	4,320	2,222	0I	0I	0I	0I	0I
223 Inst Paper Sci and Tech	5,761	6,231	5,782	5,777	5,208	4,721	4,627	5,209
224 Univ of Tex at Arlington	5,729	7,064	7,670	5,760	4,950	3,160	2,314	1,814
225 University of Toledo	5,551	4,599	3,843	2,950I	2,058	1,790	1,686	1,047
226 Union College (NY)	5,459	5,193	5,144	3,534I	1,926I	318	330	230
227 U of MD Baltimore County	5,385	4,342	3,975	3,222	2,887	2,755	2,083	2,109
228 Univ of P R-Rio Piedras	5,374	4,017	4,741	4,175	3,904I	3,633I	3,362I	3,091I
229 Tuskegee University	5,089	5,348	3,752	2,752	1,787I	822	910I	998E
230 Florida Atlantic Univ	4,985	3,469	3,045	2,665	2,059	1,105E	1,005	893
Total, 1st 230 insts.	15,933,420	14,638,929	13,146,260	11,874,518	10,673,908	9,463,612	8,414,704	7,690,061
231 U of the Virgin Islands	4,883E	4,734	4,666	2,386E	1,760	1,312	1,231	1,107I
232 Southern U & A&M College	4,856	3,967	3,451	2,196	2,845	3,191	3,068	2,401
233 U Hlth Sci/Chcgo Med Sch	4,695	4,535	4,369	3,866	3,677	3,479	3,267I	3,057I
234 Worcester Poly Institute	4,683	4,208	3,814	3,562	3,708I	3,853I	3,998I	4,143
235 Univ of Sthrn Mississippi	4,666	4,413	3,517	3,840	2,440	1,758	1,445I	1,133
236 Mercer University	4,656	3,043	931	620	428	251	270I	288
237 University of Tulsa	4,525	3,329	3,333	2,852I	2,371I	1,890	1,829	1,434
238 American University	4,127	3,765	3,917	3,286	2,720I	2,156I	1,592I	1,028
239 Oakland University	4,102	4,673	3,132	4,500	4,016I	3,535I	3,054I	2,573
240 Alfred University	4,067	3,874	3,829	2,591	1,929	1,501	951	1,088
Total, 1st 240 insts.	15,978,480	14,679,470	13,181,219	11,904,217	10,699,802	9,486,538	8,435,409	7,708,313
241 Wesleyan University	4,021	3,943	3,140	3,397	2,456	2,750	3,965I	5,179E
242 Central State University	3,976	673	NA	NA	NA	NA	NA	NA
243 Western Michigan Univ	3,920	2,934I	1,949	1,267	1,600	822	450	386E
244 Louisiana Tech University	3,894	3,930	2,828	2,775	2,610I	2,445I	2,280I	2,115
245 CUNY Grad Sch & Univ Ctr	3,858	3,069	2,189	2,336	2,569	1,363	967	1,520
246 Portland State University	3,834	3,374	2,810	2,737	2,298I	1,859	1,595	1,759I
247 Jackson State University	3,762	3,747	3,403	2,260	2,076I	1,896I	1,716I	1,536I
248 Prairie View A & M Univ	3,521	3,680	1,741E	1,498	2,015I	2,531I	3,047I	3,563I
249 Bowling Green State Univ	3,400	3,353	3,142	2,439	2,018	1,763	1,582	1,717
250 Tennessee State Univ	3,300	3,442	3,408	2,719	2,661	2,422E	2,182	1,804E
Total, 1st 250 insts.	16,015,966	14,711,615	13,205,829	11,925,645	10,720,105	9,504,389	8,453,193	7,727,892

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-32. Total R&D expenditures at universities and colleges: fiscal years 1983-90

[Dollars in thousands]

Institution ranking	Total							
	1990	1989	1988	1987	1986	1985	1984	1983
251 Marquette University	3,262	2,454	2,411	1,621	1,559	1,749	1,518	1,379
252 Virginia State University	3,258	2,620	2,476	2,356I	2,236I	2,116	2,293	2,153I
253 Wichita State University	3,196	3,443	4,758	2,741	2,018	1,890	1,558	1,162
254 Fairleigh Dickinson Univ	3,183	3,356	4,196	3,210	2,276	1,680	1,834	1,514
255 Univ of N C at Charlotte	3,152	3,014	2,085	1,870I	1,656I	1,442I	1,228I	1,014I
256 Cal Poly St U San Luis Ob	3,118	3,182	1,792	1,615I	1,437I	1,259I	1,081I	903I
257 Chas R Drew U of Med & Sc	3,098I	5,898	2,826	2,913	1,942I	971I	0	0
258 New York Inst Technology	3,087	3,998	5,678	6,093	4,858I	3,584	3,472	2,737
259 S Dak Sch Mines & Tech	3,000	2,596	2,418	1,916	1,978	1,847	1,796I	1,748I
260 Univ of Missouri Sys Off	2,991	9,500	8,734	9,512	8,735	6,730	6,027	3,661
Total, 1st 260 insts.	16,047,311	14,747,676	13,243,206	11,959,492	10,748,780	9,527,657	8,474,000	7,744,163
261 Illinois State University	2,951	2,559	2,578	2,296	1,758	1,652I	1,549I	1,446I
262 Kentucky State University	2,856	1,721	1,697	1,856	1,656I	1,456I	1,256	1,151I
263 Lincoln University	2,771	2,901	NA	NA	NA	NA	NA	NA
264 Texas Col of Osteo Med	2,767	3,630	4,461	3,560	3,247	2,968I	2,689I	2,410
265 South Carolina St College	2,593	1,694I	796	878I	955I	1,032I	1,109I	1,186I
266 University of D C	2,569	2,271I	1,973	1,485	2,371	2,172	1,362	910
267 Texas A & I University	2,558	5,941	3,470	2,288I	2,109I	1,930I	1,751I	1,572
268 CUNY Queens College	2,551	5,301	5,204	3,066I	1,977I	1,856I	1,741I	1,626
269 Fordham University	2,501	2,648	2,386	2,190	1,850I	1,511I	1,172	1,211
270 Fort Valley State Univ.	2,313	2,173	NA	NA	NA	NA	NA	NA
Total, 1st 270 insts.	16,073,741	14,772,515	13,261,771	11,976,131	10,764,697	9,542,234	8,486,629	7,755,675
271 Hampton University	2,307	2,168	NA	NA	NA	NA	NA	NA
272 Univ of Missouri St Louis	2,291	2,439	2,218	1,824	1,930	1,527	1,633	1,013
273 Miami University (Ohio)	2,203	2,364	2,194I	2,024I	1,854I	1,684I	1,514	1,243
274 Air Force Inst of Tech/Nr	2,200	1,800I	1,400	456	370I	285	146	130
275 Lamar University	2,121	779	202	417	330	199	198	370
276 Alcorn State University	1,935	1,850	1,692E	1,623I	1,554I	1,485	1,359I	1,237I
277 OSU College of Osteo Med	1,935	1,133	1,278	1,566	1,001	850I	701I	552I
278 Institute of Textile Tech	1,921	1,311	1,678	1,538	1,172I	1,109I	1,046I	983I
279 East Tennessee State Univ	1,902	1,629	1,163	1,258	1,136I	1,015	691	809
280 Xavier University of LA	1,902	1,294	NA	NA	NA	NA	NA	NA
Total, 1st 280 insts.	16,094,458	14,789,282	13,273,596	11,986,193	10,774,064	9,550,388	8,493,717	7,762,012
281 Bryn Mawr College	1,854	895	817	807	565	509	563	554
282 U of MD Eastern Shore	1,850	2,944	1,736	1,522	1,613	1,534I	1,455I	1,376E
283 Univ of South Dakota	1,831	1,381	1,287	1,200I	1,113I	1,026I	939	901
284 Texas Christian Univ	1,823	888	737	912	1,124	1,047	955	1,773
285 Eastern Washington Univ	1,811	1,615	1,333	1,384	1,098	929	1,199I	1,468I
286 Amherst College	1,792	1,557	1,549	1,400I	1,254I	1,108I	962I	816
287 Univ of Wis-Superior	1,704	1,745	1,553	1,659	1,412	1,518	1,225	1,066
288 Idaho State University	1,634	1,312	711	709	661	401	394	298
289 Occidental College	1,627	2,011	1,535	1,482I	1,431I	1,380I	1,329I	1,278
290 Nova University	1,601	1,108	962	873	730I	587	702	741
Total, 1st 290 insts.	16,111,985	14,804,738	13,285,816	11,998,141	10,785,067	9,560,427	8,503,440	7,772,283
291 Santa Clara University	1,569	1,396	1,355	1,094	962	1,114	1,149	961
292 Texas Southern Univ	1,546	1,519	1,703	1,491I	1,279I	1,067	322	497
293 University of Detroit	1,526	1,282	805	798I	795I	792I	789I	786
294 Northeast Missouri St U	1,522	1,605	772	402	272I	142	145I	147I
295 Seton Hall University	1,515I	1,417I	1,290I	1,171I	1,058I	954I	859I	791I
296 Wentworth Inst of Tech	1,435	1,383	1,457	1,431I	1,405I	1,379I	1,353I	1,327
297 NE Ohio Univ Med School	1,409	1,616	1,956	1,349	1,020	1,062	976	1,204
298 Smith College	1,398	1,774	1,264	1,265I	1,265I	1,265I	1,265I	1,265
299 Stephen F Austin St Univ	1,390	1,417	791	863	896I	928I	960	671
300 Villanova University	1,390	1,440	696	755	547I	339	304	386I
Total, 1st 300 insts.	16,126,685	14,819,587	13,297,905	12,008,760	10,794,566	9,569,469	8,511,562	7,780,318

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-32. Total R&D expenditures at universities and colleges: fiscal years 1983-90

(Dollars in thousands)

Institution ranking	Total							
	1990	1989	1988	1987	1986	1985	1984	1983
301 Cal Sch Prof Psych-Fresno	1,382	1,922	1,015	535	267I	0	0	0
302 Univ of West Florida	1,358	1,619	1,313	2,099I	2,882I	3,665I	4,448I	5,231
303 CUNY Col Staten Island	1,351	1,171	867	788I	712I	636I	560I	484I
304 Texas Women's University	1,336	969	825	709	740	1,112	992	1,041
305 Calif St Poly Univ Pomona	1,320	1,314	1,626	1,340I	1,058I	776I	494I	212
306 Cal Sch Prof Psych-L A	1,316	1,551	616	500	500	0	0	0E
307 Clark University	1,281	1,256	1,111	1,058	1,335I	1,611I	1,887I	2,163I
308 Marshall University	1,270	1,679	1,526	938	837	856	798	611
309 SUNY College Plattsburgh	1,254	1,030	1,164	922	1,075	341	183	0
310 Langston University	1,200	2,349	NA	NA	NA	NA	NA	NA
Total, 1st 310 insts.	16,139,753	14,834,447	13,307,968	12,017,649	10,803,972	9,578,466	8,520,924	7,790,060
311 Univ of Ark Pine Bluff	1,188	1,148	1,199	1,047	1,010	1,002	885	1,500
312 Pomona College	1,179	1,264	536	600I	662I	724I	786I	848I
313 Albany State College	1,173	1,725	366	263	207I	152I	97	133
314 Chicago Col of Osteo Med	1,161	1,651	2,352	1,775	1,568	1,188	916	1,010
315 Fisk University	1,156	1,157	1,741	862	732I	604I	476I	348I
316 Univ of N C at Greensboro	1,154	823	455	495	386	604	509	470I
317 Phila Col of Pharm & Sci	1,153	778	405	342	425	302	314	254I
318 CUNY Bernard Baruch Col	1,150	646	194	234I	266I	298I	330I	362I
319 Baylor University	1,143	1,841	934	931	870I	810I	750I	690
320 Central Michigan Univ	1,071	866	1,025	1,164	669	268	326	196
Total, 1st 320 insts.	16,151,281	14,846,346	13,317,075	12,025,359	10,810,467	9,584,418	8,526,313	7,795,871
321 Tougaloo College	1,028	1,191	NA	NA	NA	NA	NA	NA
322 Delaware State College	1,027	1,027	NA	NA	NA	NA	NA	NA
323 New Sch For Soc Research	1,026	1,000	1,282	585	425I	266I	107	100
324 Coppin State College	1,017	834	NA	NA	NA	NA	NA	NA
325 Univ of Nebraska at Omaha	1,002	410	235	186	151	109	113	112
326 De Paul University	972	905	576	617	376I	135E	132	99
327 Ponce School of Medicine	943	856	663	657	715	11	10	0
328 Indiana State University	903	967	949	541	782	690I	598I	506
329 University of the Pacific	897	990	968I	951I	934I	917I	900I	883I
330 Morehouse College	868	1,093	NA	NA	NA	NA	NA	NA
Total, 1st 330 insts.	16,160,964	14,855,619	13,321,748	12,028,896	10,813,850	9,586,546	8,528,173	7,797,571
331 Ball State University	850	798	696	664	725	725	598	531
332 Baylor Col of Dentistry	849	788	692	598	639	414	1,150	228
333 Lincoln University (PA)	845	768E	867	648I	432I	216I	0	0
334 SUNY College Brockport	833	357	219	205I	195I	185I	175I	165I
335 SUNY College Buffalo	832	863I	893I	923I	953I	983I	1,013I	1,043I
336 Norfolk State University	826	652	422	304	456	588	584I	581I
337 CUNY York College	816	826	723	659	779I	899	560	583
338 Columbia U Teachers Col	803	581	900	765	644I	525I	406I	287
339 Univ of Wis-Parkside	798	883	704	659I	614I	569I	524I	479
340 Univ of Wis-La Crosse	795	531	309	347	338	534	440	426
Total, 1st 340 insts.	16,169,211	14,862,666	13,328,176	12,034,668	10,819,615	9,592,184	8,533,623	7,801,896
341 Selma University	790	816	NA	NA	NA	NA	NA	NA
342 St John's University (NY)	759	632	814	769I	726I	683	366	257
343 Arkansas State University	755	715	432	422I	416I	410I	404I	398I
344 Univ of Wis-Stout	755	635	464	379I	297I	215I	133I	51
345 Northeast Louisiana Univ	667	439	386	308	315	235	184	167
346 Morgan State University	657	649	742E	635	886	775I	665I	555I
347 Barnard College	653	717	677	670I	667I	664I	661I	658
348 Morris Brown College	647E	164	NA	NA	NA	NA	NA	NA
349 Adelphi University	633I	592	466I	341	317I	296I	275I	254
350 U Ctrl Del Caribe Esc Med	620	682	540	577	819	175	0	0
Total, 1st 350 insts.	16,176,147	14,868,707	13,332,697	12,038,769	10,824,058	9,595,637	8,536,311	7,804,236

See explanatory information, if any, and SOURCE(S) at end of table.

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Table B-32. Total R&D expenditures at universities and colleges: fiscal years 1983-90

[Dollars in thousands]

Institution ranking	Total							
	1990	1989	1988	1987	1986	1985	1984	1983
351 Canisius College	619	209	309	289I	270I	251I	232I	213
352 Claremont Univ Ctr & Grad	583	746	1,353	1,367	1,280I	1,193I	1,106I	1,019I
353 Pacific Lutheran Univ	577	44	70	75I	77I	79I	81I	83I
354 Grand Valley State Univ	570	465	576	484I	392I	300I	208I	116
355 Duquesne University	558	357	357	357	380I	400I	420I	440I
356 Bethune Cookman College	554	440	NA	NA	NA	NA	NA	NA
357 Southern Univ-New Orleans	553I	500	NA	NA	NA	NA	NA	NA
358 Kirksville Col Osteo Med	539	727	791I	855	769I	689I	609I	529I
359 West Texas State Univ	533	597	470	677	524	617	504	473I
360 Winston-Salem State Univ	532	650	NA	NA	NA	NA	NA	NA
Total, 1st 360 insts.	16,181,765	14,873,442	13,336,623	12,042,873	10,827,750	9,599,166	8,539,471	7,807,109
361 Hofstra University	515	366	165	258	278	219	160	146
362 Milwaukee School of Eng	508	565	640	614I	594I	574I	554I	534I
363 Spelman College	505	399	NA	NA	NA	NA	NA	NA
364 SUNY St Coll of Optometry	483	494	375	518	448I	381I	314I	247
365 Johnson C. Smith Univ	477	480	NA	NA	NA	NA	NA	NA
366 Univ of Wis-Green Bay	449	616	376	402I	425I	448I	471I	494
367 Univ of Wis-Stevens Point	449	432	362	380I	394I	408I	422I	436
368 East Stroudsburg U of PA	440	447	486	414I	347I	280I	213I	146I
369 Univ of Wis-Eau Claire	430	544	369	324I	281I	238I	195I	152
370 Bennett College	425	364	NA	NA	NA	NA	NA	NA
Total, 1st 370 insts.	16,186,446	14,878,149	13,339,396	12,045,783	10,830,517	9,601,714	8,541,800	7,809,264
371 Alabama State University	423	456	NA	NA	NA	NA	NA	NA
372 Knox College	410	382	292	250I	212I	174I	136I	98
373 Grambling State Univ	409	106	64	136	137I	137I	137I	137I
374 Andrews University	394	200	190E	160I	130I	100I	70I	40
375 SUNY College New Paltz	387	107	36	220	198I	178I	158I	138
376 Sam Houston State Univ	380	219	206	320	390	264	311	229
377 University of Portland	370	462	598	481I	365I	249I	133I	17
378 Univ of Northern Iowa	357	156	95	78I	62I	46I	30I	14
379 Phila Col Osteopathic Med	340	515	381	344	233	116I	0	0
380 SUNY College Fredonia	323	302I	282	277I	272I	267I	262I	257
Total, 1st 380 insts.	16,190,239	14,881,051	13,341,540	12,048,049	10,832,516	9,603,245	8,543,037	7,810,194
381 SUNY College Geneseo	316	188	218	179I	142I	105I	68I	31
382 Abilene Christian Univ	315	353	334	295I	260I	225I	190I	155
383 Univ of Wis-Oshkosh	312	217	166	145I	127I	109I	91I	73
384 Tarleton State University	309	38	44	44	53I	61I	69	77
385 Sul Ross State University	301	215	155	141I	129I	117I	105I	93
386 Catholic U of PR	286	515	443	522	514I	507I	500	551
387 East Texas State Univ	279	401	269	429	408	276	181	103
388 SUNY College Cortland	254	168	151	127I	104I	81I	58I	35
389 Oakwood College	236	0	NA	NA	NA	NA	NA	NA
390 Univ of Northern Colorado	223	182	33	50	61	48	0	0
Total, 1st 390 insts.	16,193,057	14,883,328	13,343,353	12,049,981	10,834,314	9,604,774	8,544,299	7,811,308
391 Savannah State College	221	179	NA	NA	NA	NA	NA	NA
392 Claflin College	205	0E	NA	NA	NA	NA	NA	NA
393 North Carolina Cntrl Univ	199	555E	571	515I	464I	413I	362I	311I
394 Drake University	182	167	163	144I	126I	108I	90I	72
395 St Olaf College	172	136	210	216I	222I	228I	234I	240
396 Long Island University	171	313	572	324	116	132	156	113
397 SUNY College Oswego	160	467	341	334	422I	510	282	210I
398 Rust College	156	214	NA	NA	NA	NA	NA	NA
399 Fayetteville State Univ	154	360	NA	NA	NA	NA	NA	NA
400 Colorado College	151	74	53	72I	85I	98I	111I	124I
Total, 1st 400 insts.	16,194,828	14,885,793	13,345,263	12,051,586	10,835,749	9,606,263	8,545,534	7,812,378

See explanatory information, if any, and SOURCE(S) at end of table.

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Table B-32. Total R&D expenditures at universities and colleges: fiscal years 1983-90

[Dollars in thousands]

Institution ranking	Total							
	1990	1989	1988	1987	1986	1985	1984	1983
401 Seattle University	148	241	167	0	101	20E	28	35I
402 West Virginia State Col	146	81	NA	NA	NA	NA	NA	NA
403 Augsburg College	139	115	90	82I	75I	68I	61I	54I
404 W VA Schl Osteopathic Med	134	120	85	90	78I	66	200E	229I
405 Southern Univ-Shreveport	131	148	NA	NA	NA	NA	NA	NA
406 Univ of Wis-River Falls	122	143	85	73I	65I	57I	49I	41
407 Philander Smith College	120	162	NA	NA	NA	NA	NA	NA
408 Kutztown Univ of Penn	119	195	360	330I	306I	282I	258I	234I
409 Northeastern Ill Univ	118	77	57	52I	63I	74I	85I	96
410 Northwestern St Univ La	112	77	7	9I	11I	13I	15I	17I
Total, 1st 410 insts.	16,196,117	14,887,154	13,346,094	12,052,222	10,836,357	9,606,843	8,546,230	7,813,084
411 SUNY College Oneonta	104	77	67	77I	86I	95I	104I	113
412 Monmouth College (NJ)	96	100	0	0I	0I	0I	0I	0
413 US International Univ	93	224	0	0	0	0I	0	0
414 SUNY College Potsdam	91	145	113	144I	170I	196I	222I	248I
415 Goucher College	87	78	65	72I	82I	95I	102I	112I
416 Chapman College	86	81E	81	70I	60I	50I	40I	30I
417 Univ of Wis-Whitewater	78	134	70	60I	53I	46I	39I	32
418 Montclair State College	76	55	36	45I	47I	49I	51I	53I
419 Jarvis Christian College	75	60	NA	NA	NA	NA	NA	NA
420 Bemidji State University	74	60	48	40I	36I	32I	28I	24
Total, 1st 420 insts.	16,196,977	14,888,138	13,346,571	12,052,730	10,836,891	9,607,403	8,546,816	7,813,696
421 Mass Col Phar/Allied Hlth	73	41	90I	137I	184I	231I	278I	325
422 Univ Osteo Med & Hlth Sci	67	97	108	20	12I	6I	0	0
423 Cal Sch Prof Psych-S D	66I	62	59	0	0I	0	0	0
424 Knoxville College	66I	60	NA	NA	NA	NA	NA	NA
425 Oral Roberts University	60	1,206	2,637	2,519I	2,401I	2,283	0	0
426 Xavier University	60	116	149	234I	318I	402I	486I	570I
427 Southern Oregon St Col	57	89	0	0	0	0	22	65
428 Fuller Theological Sem	50	60	50	20	12	7	7E	6
429 Miss Valley State Univ	43	14	31	0	0I	0I	0	0
430 Bowie State University	35	0	NA	NA	NA	NA	NA	NA
Total, 1st 430 insts.	16,197,554	14,889,883	13,349,695	12,055,660	10,839,818	9,610,334	8,547,609	7,814,662
431 Trenholm State Tech Col	30	22	NA	NA	NA	NA	NA	NA
432 Providence College	32	18	47	37	24I	12	23	21I
433 Univ of Wis-Platteville	23	47	10	13I	13I	13I	13I	13
434 Elizabeth City State Univ	15	26	NA	NA	NA	NA	NA	NA
435 Col Osteo Med of Pacific	9	11	0	0	0	0	0	0
436 Antioch University	0	0	0	1I	2I	3I	4I	5E
437 Benedict College	0	0	NA	NA	NA	NA	NA	NA
438 Biola University	0	13	0	0	0	0	0	0
439 Cal Sch Prof Psych-Berkly	0	0	0	0	0	0	0	0
440 Calif St Univ Stanislaus	0	0	0	431	862I	1,293I	1,724I	2,155
Total, 1st 440 insts.	16,197,656	14,890,020	13,349,752	12,056,142	10,840,719	9,611,655	8,549,373	7,816,856
441 Cheyney University of PA	0	0E	NA	NA	NA	NA	NA	NA
442 Clark Atlanta University	0I	0E	NA	NA	NA	NA	NA	NA
443 Dillard University	0	469	0	0	0I	0I	0	0
444 Fielding Institute	0	0	0	0	0	0	0	0
445 Mayo Grad School of Med	0	0	0	0	0I	0I	0	0
446 Paul Quinn College	0	0	NA	NA	NA	NA	NA	NA
447 Rand Grad Inst Pol Stdies	0	0	0	0	0I	0	0I	0
448 Shaw University	0	0	NA	NA	NA	NA	NA	NA
449 Slippery Rock Univ of PA	0	0	45	361	271	181	91	0
450 St Bonaventure University	0	0	31	6E	4I	2I	0	0
Total, 1st 450 insts.	16,197,656	14,890,489	13,349,800	12,056,184	10,840,750	9,611,675	8,549,382	7,816,856

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-32. Total R&D expenditures at universities and colleges: fiscal years 1983-90

[Dollars in thousands]

Institution ranking	Total							
	1990	1989	1988	1987	1986	1985	1984	1983
451 St Louis Community Col	0	0	0	0I	0I	0I	0I	0
452 Stillman College	0	0	NA	NA	NA	NA	NA	NA
453 Talladega College	0	366	NA	NA	NA	NA	NA	NA
454 The Wright Institute	0	0	0	0	0	295I	587I	879I
455 U of California System	0	0	26,439	19,307	13,926	11,866	10,161	9,402
456 Union Institute	0	0	0	0	0I	0I	0	0
457 Univ of Health Sciences	0	0	58	83	54I	27I	0	0
458 Voorhees College	0	0	NA	NA	NA	NA	NA	NA
459 Wiley College	0	0	NA	NA	NA	NA	NA	NA
Total, 1st 459 insts.	16,197,656	14,890,855	13,376,297	12,075,574	10,854,730	9,623,863	8,560,130	7,827,137
Total, all other sampled insts.	0	0	87,571	78,675	71,497	63,099	57,052	50,120
Estimated total non-sampled insts.	126,954	118,229	0	0	0	0	0	0

1/ Includes Applied Physics Laboratory with $416 million in total R&D expenditures.

2/ Does not include R&D expenditures at university associated federally funded research and development centers. See tables B-73 and B-74.

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-33. Federally financed R&D expenditures at universities and colleges: fiscal years 1983-90

[Dollars in thousands]

Institution ranking	Federally financed							
	1990	1989	1988	1987	1986	1985	1984	1983
Total, all institutions	9,611,045	8,983,986	8,181,246	7,333,076	6,702,661	6,056,519	5,423,809	4,983,216
1 Johns Hopkins Univ 1/	599,851	590,184	509,009	476,290	412,714	367,053	331,859	282,386E
2 Stanford University	251,446	238,650	232,572	204,386	192,076	172,423	149,520	135,172
3 Mass Inst of Technology	233,813	215,140	210,419	206,785	201,097	189,935	174,938	162,801
4 University of Washington	203,353	182,453	160,261	145,184	141,973	135,830	119,785	108,512
5 Univ of Cal San Diego	182,555	171,479	159,778	142,751	128,250	115,632	115,349	123,433
6 University of Michigan	180,456	174,875	160,854	137,558	118,069	106,147	99,341	84,120
7 Univ of Wis-Madison	178,862	169,452	162,384	149,665	138,784	123,989	110,704	100,026
8 Univ of Cal San Francisco	175,257	159,906	137,747	117,302	105,694	95,615	82,822	67,035
9 Cornell University	171,249	157,984	153,662	144,604	134,660	119,319	100,767	90,185
10 Univ of Cal Los Angeles	164,442	159,002	148,948	130,763	121,668	109,689	96,524	83,699
Total, 1st 10 insts.	2,341,284	2,219,125	2,033,632	1,855,288	1,694,985	1,535,632	1,381,609	1,237,369
11 Columbia Univ Main Div	156,270	146,712	139,558	133,018	128,436	120,120	107,874	100,574
12 Harvard University	154,090	143,451	133,003	119,955	111,503	103,556	93,430	89,824
13 Yale University	144,962	138,835	132,952	116,943	107,600	98,700	85,909	85,205
14 University of Minnesota	143,810	132,880	119,789	109,003	100,308	87,776	79,489	79,637
15 Pennsylvania State Univ	136,656	114,646	106,020	93,200	82,412	70,099	60,444	56,875
16 Univ of Pennsylvania	133,747	123,810	115,080	111,185	105,925	92,893	89,831	80,516
17 Univ of Cal Berkeley	131,717	124,371	116,565	108,828	102,578	96,779	87,653	76,917
18 Univ of Southern Cal	123,714	119,005	112,615	101,749	92,906	76,425	64,239	57,976
19 Univ of Ill Urbana	117,170	114,398	109,633	104,420	83,996	80,536	71,182	59,806
20 Univ. of Colorado	116,394	109,145	96,041	83,144	74,887	69,359	59,080	55,028
Total, 1st 20 insts.	3,699,814	3,486,378	3,214,888	2,936,733	2,685,536	2,431,875	2,180,740	1,979,727
21 Univ of Texas at Austin	109,593	94,311	89,982	88,395	75,152	65,029	56,482	58,231
22 Duke University	106,053	99,036	86,240	67,925	62,879	56,437	50,793	46,808
23 Washington University	105,759	96,829	88,843	77,757	68,399	61,050	57,537	54,350
24 University of Rochester	105,644	101,049	92,533	80,322	75,939	64,064	55,015	48,744
25 University of Chicago	96,327	90,459	80,967	75,889	73,304	66,950	64,010	61,985
26 Georgia Institute of Tech	94,842	98,048	78,798	63,132	58,432	50,349	51,241	49,533
27 Texas A & M University	93,001	93,584	90,163	75,432	75,946	71,346	53,201	43,813
28 University of Arizona	92,920	80,533	73,309	65,024	61,973	51,694	47,411	44,741
29 Univ of NC at Chapel Hill	92,468	93,280	82,723	72,529	64,625	55,746	44,430	43,384
30 University of Pittsburgh	90,700	81,217	72,462	62,060	55,805	48,714	40,668	36,334
Total, 1st 30 insts.	4,687,121	4,414,724	4,050,908	3,665,198	3,357,990	3,023,254	2,701,528	2,467,650
31 California Inst of Tech	90,577	84,167	78,750	71,086	63,708	56,805	43,390	43,340
32 New York University	80,756	81,143	77,746	76,126	69,099	60,567	54,298	49,860
33 University of Iowa	79,046	74,271	64,370	57,159	52,497	48,059	41,468	40,460
34 Ohio State University	78,878	75,484	69,135	58,555	56,418	53,240	46,060	43,686
35 Univ of Cal Davis	77,424	72,718	63,435	56,622	48,549	47,652	45,436	43,439
36 Baylor Col of Medicine	75,793	69,336	60,825	49,834	46,729	41,749	37,378	36,772
37 Univ Alabama Birmingham	74,486	68,204	62,369	54,534	45,337	39,030	32,383	25,509
38 Case Western Reserve Univ	70,515	68,632	59,078	53,580	47,032	42,182	39,337	34,963
39 University of Miami	68,144	63,101	48,971	38,052	36,531	32,817	30,644	32,236
40 SUNY at Buffalo	66,876	64,453	60,097	51,212	47,308	42,860	39,417	38,415
Total, 1st 40 insts.	5,449,616	5,136,233	4,695,684	4,231,958	3,871,198	3,488,215	3,111,339	2,856,330
41 Vanderbilt University	66,747	56,151	44,646	31,343	27,269	24,709	21,649	19,889
42 Univ of MD College Park	66,410	58,924	55,365	55,194	43,769	39,365	32,829	30,768
43 Yeshiva University	65,066	58,224	58,823	59,768	56,922	55,794	51,494	46,102
44 University of Florida	64,614	60,731	54,785	49,311	46,751	42,031	39,946	33,708
45 Carnegie-Mellon Univ	64,550	65,079	63,009	53,817	41,706	37,666	33,419	30,546
46 Purdue University	64,464	63,979	64,163	56,302	56,475	48,542	43,524	42,147
47 Woods Hole Ocngrphic Inst	62,356	64,333	49,400	42,239	38,666	38,560	37,765	35,997
48 University of Utah	62,297	61,819	57,383	54,226	51,428	45,564	41,606	37,981
49 Northwestern University	61,812	57,510	54,245	49,286	46,755	42,317	40,709	36,519
50 Boston University	60,459	56,402	51,918	49,406	45,457	38,257	34,276	27,906
Total, 1st 50 insts.	6,088,391	5,739,385	5,249,421	4,732,850	4,326,396	3,901,020	3,488,556	3,197,893

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-33. Federally financed R&D expenditures at universities and colleges: fiscal years 1983-90

[Dollars in thousands]

Institution ranking	Federally financed							
	1990	1989	1988	1987	1986	1985	1984	1983
51 Utah State University	58,965	42,449	34,763	22,109	22,814	21,716	19,983	19,058
52 University of Virginia	58,801	51,214	47,482	41,267	38,541	35,152	31,947	28,564
53 Univ. Of Tennessee System	58,648	57,763	43,108	36,902	34,569	31,226	27,412	25,392
54 Michigan State University	58,221	51,741	49,771	44,989	47,725	46,605	44,133	43,067
55 Indiana University	57,155	58,334	52,498	44,211	40,024	37,527	32,565	29,882
56 Univ of Massachusetts	56,018	56,505	52,139	44,256	39,452	33,544	28,945	27,017
57 SUNY at Stony Brook	55,911	49,726	54,017	40,302	35,249	31,946	28,046	25,639
58 UT SW Medical Ctr-Dallas	54,965	51,254	48,357	45,382	38,504	34,087	29,175	26,561
59 New Mexico State Univ	54,688	45,660	43,481	37,904	33,394	29,235	29,159	30,750
60 Univ of Cal Irvine	52,492	46,492	42,894	38,138	38,328	34,772	29,929	27,484
Total, 1st 60 insts.	6,654,255	6,250,523	5,717,931	5,128,310	4,694,996	4,236,830	3,789,850	3,481,307
61 Emory University	52,367	46,497	43,668	36,698	32,819	26,136	22,896	20,163
62 Princeton University	51,559	47,176	47,245	43,505	36,199	30,892	27,747	25,027
63 Colorado State University	50,744	46,572	44,600	38,961	36,592	28,702	26,479	25,321
64 Oregon State University	50,544	49,112	48,877	46,774	41,307	41,117	40,482	35,530
65 Louisiana State Univ	48,802	40,114	35,578	31,089	27,808	26,086	20,818	18,786
66 Univ of Cal Santa Barbara	47,873	39,227	36,205	32,856	27,320	23,131	21,552	17,863
67 VA Polytech Inst & St U	45,949	38,597	33,771	32,129	30,259	25,650	23,090	20,406
68 University of Cincinnati	44,966	40,598	35,986	32,044	27,758	24,924	22,350	20,074
69 Univ of Ill Chicago	43,968	43,288	40,260	34,570	30,109	26,357	24,829	24,549
70 University of Georgia	43,864	42,797	39,703	35,261	32,184	28,403	26,581	22,434
Total, 1st 70 insts.	7,134,891	6,684,501	6,123,824	5,492,197	5,017,351	4,518,228	4,046,674	3,711,460
71 N C State Univ at Raleigh	43,787	37,783	34,256	33,662	30,851	28,229	25,668	23,286
72 CUNY Mt Sinai Sch of Med	43,607	37,233	32,852	31,024	26,166	23,997	21,411	20,587
73 University of Connecticut	43,477	46,184	38,953	36,884	36,142	38,944	44,592	34,960
74 Univ of Hawaii-Manoa	42,665	40,574	38,560	34,472	35,322	34,886	32,701	27,633
75 Virginia Commonwlth Univ	41,606	35,151	31,150	31,095	27,242	26,816	20,658	21,998E
76 Rutgers the St Univ of NJ	40,977	35,896	29,204	27,178	24,059	23,947	19,984	18,894
77 Univ of MD Balt Prof Sch	38,841	35,970	33,102	26,244	21,735	19,738I	17,741I	15,744I
78 Tufts University	38,290	40,771	41,953	37,148	32,696I	28,249I	23,802I	19,355I
79 Brown University	36,919	34,506	35,150	32,024	25,333	22,645	21,294	19,728
80 Rockefeller University	36,788	41,192	37,452	37,983	35,738	30,047	26,713	23,625
Total, 1st 80 insts.	7,541,848	7,069,761	6,476,456	5,819,911	5,312,635	4,795,726	4,301,238	3,937,270
81 Georgetown University	36,093	37,351	30,666	24,477	19,894	16,887	14,626	11,630
82 Iowa St U of Sci & Tech	34,043	28,895	23,306	19,682	17,376	16,030	20,755	21,050
83 Univ of Med & Dent of N J	33,185	27,983	21,849	16,989	15,840	14,753	12,561	11,456
84 Florida State University	32,927	25,498	24,027	21,416	21,850	16,910	12,054	10,810
85 Univ of Alaska Fairbanks	31,896	26,659	23,441E	21,523I	19,607I	17,691I	15,775I	13,859
86 U of VT & State Agr Coll	30,555	28,535	25,539	22,289	19,848	18,957	14,932	12,850
87 Univ of South Florida	30,481	26,576	8,841	7,890	7,344	5,545	4,901	3,543
88 Wake Forest University	30,182	28,511	23,026	18,772	16,497I	14,224I	11,951I	9,678I
89 Dartmouth College	30,135	27,222	25,729	21,864	18,816I	15,769I	12,722	12,730
90 University of Kentucky	29,612	27,010	27,724	26,261	21,736	16,497	15,922	13,786
Total, 1st 90 insts.	7,860,957	7,354,001	6,710,604	6,021,074	5,491,443	4,948,989	4,437,437	4,058,662
91 U Tex Hlth Sci Ctr S Anto	29,431	29,324	27,528	22,469	22,779	19,697	16,550	16,005
92 University of Dayton	29,044	26,650	26,101	25,370	23,631	21,272	20,216	16,984
93 U Tex Hlth Sci Ctr Houstn	29,017	29,500	27,658	24,727	22,604	19,023	14,732	14,410
94 UT MD Anderson Cancer Ctr	28,889	28,992	27,129	22,162	21,304	19,408	16,379	15,112
95 Wayne State University	28,488	28,167	22,716	16,927	15,789	15,682	14,965	12,713
96 Tulane University	28,331	24,095	23,727	21,836	18,420	14,471	12,294	11,221
97 Oregon Hlth Sciences Univ	27,241	24,162	18,240	15,379	13,241	10,928	10,443	10,013
98 Washington State Univ	26,884	22,697	21,361	21,274	20,115	20,567	12,908	12,563
99 George Washington Univ	26,817	25,220	19,888	20,142	17,579I	15,016	17,209	17,792
100 University of Kansas	26,786	26,420	24,880	22,941	21,837	19,731I	17,628I	15,525I
Total, 1st 100 insts.	8,141,885	7,619,228	6,949,832	6,234,301	5,688,742	5,124,784	4,590,761	4,201,000

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-33. Federally financed R&D expenditures at universities and colleges: fiscal years 1983-90

[Dollars in thousands]

Institution ranking	Federally financed							
	1990	1989	1988	1987	1986	1985	1984	1983
101 Arizona State University	26,590	22,151	19,006	14,009	13,541	12,556	9,031	10,288
102 Temple University	26,164	25,232	20,137	18,352	18,573	18,398	18,680	18,567
103 University of New Mexico	25,449	23,934	24,862E	29,096	35,810	33,040	23,342	22,655I
104 Univ of Missouri Columbia	24,422	22,312	20,170	20,250	20,068	18,577	17,325	16,143
105 Rensselaer Polytech Inst	22,809	19,143	18,320	14,207	12,996	11,673	11,804	12,054
106 Univ of Nebraska-Lincoln	22,686	25,803	25,448	24,512	20,823	17,156	14,195	12,750
107 Thomas Jefferson Univ	22,451	21,311	16,766	14,070	7,307	7,229	6,912	6,068
108 U Tex Med Brnch Galveston	21,693	23,152	19,717	16,738	15,307I	13,876	11,595	10,428
109 Medical College of Wis	21,594	21,432	19,803	15,551	13,600	12,272	11,148I	10,027I
110 Mississippi State Univ	21,426	17,694	13,556	12,387	12,781	11,151	10,310	7,775
Total, 1st 110 insts.	8,377,169	7,841,392	7,147,617	6,413,473	5,859,548	5,280,712	4,725,103	4,327,755
111 Univ Alabama Huntsville	21,355	18,001	11,998	7,548	4,442	3,397	2,752	2,497
112 Univ of South Carolina	20,587	17,596	15,655	14,537	14,116	10,805	9,334	8,260
113 Univ of Rhode Island	20,511	21,940	22,967	19,289	19,933I	20,577	21,081	19,740I
114 University of Oregon	20,151	17,286	14,573	12,783	12,918	11,423	10,532	9,031
115 Rice University	19,997	16,340	14,300	13,155I	15,012I	10,869	9,766I	8,663I
116 Syracuse University	18,924	20,367	22,377	17,987	12,799	12,812	8,716	9,904
117 Brandeis University	18,819	19,080	18,595	16,857I	15,119I	13,381	13,112	12,932
118 West Virginia University	18,451	15,662	14,430	12,099	12,708	11,516	10,225	9,622
119 Oklahoma State University	17,744	14,116	12,850	9,575	8,502	11,833	9,170	10,081I
120 University of Delaware	17,588	17,083	13,708	13,662	12,578	10,626	10,811	9,583
Total, 1st 120 insts.	8,571,296	8,018,863	7,309,070	6,550,965	5,987,675	5,397,951	4,830,602	4,428,068
121 U of Houston	17,575	16,358	14,152	11,040	9,680	9,245	8,072	7,002
122 US Naval Postgrad School	17,333	15,170	15,487	12,934	13,006	12,083	10,891I	9,700
123 University of Oklahoma	16,871	17,020	16,326	14,453	14,263	17,229	16,003	14,206
124 Univ of Cal Riverside	15,806	15,584	16,672	15,001	14,626	13,864	13,127	11,602
125 Kans St U - Ag & App Sci	15,651	15,951	14,294	13,270	12,969	10,421	10,766	10,268
126 University of Mississippi	14,973	10,841	9,317	8,247	7,786	6,877	6,708	6,262E
127 San Diego State Univ	14,647	13,048	12,688	11,386	6,031	5,225	4,735	5,480
128 Auburn University	14,629	15,179	18,243	13,446	11,893	10,237	8,448	8,083
129 SUNY Hlth Sci Ctr - Brkln	14,574	11,552	10,754	10,494	9,946I	9,399I	8,852	9,100
130 SUNY at Albany	14,497	15,171	13,595	13,019	11,662	9,228	7,587	7,418
Total, 1st 130 insts.	8,727,852	8,164,737	7,450,598	6,674,255	6,099,537	5,501,759	4,925,791	4,517,189
131 Univ of New Hampshire	14,455	14,594	13,348	12,769	11,113	10,676	9,102	7,546
132 University of N Dakota	14,398	14,104	12,075	12,515	10,759I	9,006I	7,253I	5,500
133 Univ of P R-Mayaguez	14,337	14,114	12,879	8,732	8,183I	7,634I	7,085I	6,536I
134 Clemson University	14,221	12,484	13,148	9,016	7,550	9,965	6,668	7,822
135 St Louis University	14,106	12,272	8,332	7,783I	7,236I	6,689I	6,142I	5,595
136 Univ of Cal Santa Cruz	13,855	12,543	12,263	11,432	10,552	10,074	8,571	8,303
137 University of Idaho	13,812	12,207	10,970	8,720	8,587	13,656	12,660	11,496
138 Florida A & M University	13,110	10,509	8,674	8,100	7,683I	7,266	8,341	4,793I
139 Howard University	13,067	12,146I	11,227I	10,308	10,250E	11,721	11,098	8,671
140 University of Notre Dame	12,867	13,209	13,579	10,399	9,984	10,429	9,909	11,177
Total, 1st 140 insts.	8,866,080	8,292,919	7,567,093	6,774,029	6,191,942	5,598,875	5,012,620	4,594,628
141 University of Wyoming	12,207	13,804	11,136	8,701	9,321	7,452	7,700	6,591
142 Univ of Nevada - Reno	11,922	8,647	9,989	8,033	7,454I	6,877I	6,300E	6,000E
143 The Medical Col of Penna	11,704	11,514	9,020	7,449	6,289I	5,129I	3,969	3,371
144 Unif Serv Univ of Hlth Sc	11,288	12,706	12,613	12,076	12,860	10,453	8,890	6,997
145 Lehigh University	11,242	9,925	10,297	9,679	7,082	6,383	6,846	6,383
146 Southern Methodist Univ	11,000E	6,244	5,315	4,005	3,329I	2,654	1,886	1,454
147 Med Univ of So Carolina	10,910	11,547	10,956	10,797	10,297	9,087	8,038	7,629
148 Univ of Ark Fayetteville	10,831	8,955	8,193	7,696	8,612	8,134	6,713	7,283
149 CUNY City College	10,554	9,005	8,071	7,552	6,942I	6,332	6,097	5,494
150 Northeastern University	10,217	10,201	8,966	8,088	7,519	6,975	6,434I	5,895I
Total, 1st 150 insts.	8,977,955	8,395,467	7,661,649	6,858,105	6,271,647	5,668,351	5,075,493	4,651,725

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-33. Federally financed R&D expenditures at universities and colleges: fiscal years 1983-90

(Dollars in thousands)

Institution ranking	Federally financed							
	1990	1989	1988	1987	1986	1985	1984	1983
151 SUNY Hlth Sci Ctr - Syrcs	9,965	9,520	7,497	6,427	5,181	5,095	6,585	5,270
152 Texas Tech University	9,695	11,130	11,620	11,089	10,501	9,057	7,359I	5,662
153 Univ of Central Florida	9,354	11,153	3,476	2,701I	1,926E	1,503	2,239I	2,974
154 U of Neb Med Ctr at Omaha	9,078	8,572	7,765	7,243	6,643	6,608	4,594	3,489
155 Montana State University	9,052	8,781	10,710	8,727I	6,745	7,060	5,388	6,309
156 Univ of Maine Orono	9,046	8,288	7,048	7,787	8,584	10,653	8,444	8,311
157 New York Medical College	9,028	10,021	11,097	10,038	8,086	6,739	4,604	6,674
158 Desert Research Institute	8,767	8,968	8,088	6,539	5,811	4,737	4,406	3,389
159 University of Louisville	8,637	5,953	5,438	4,517	3,227	2,744	3,395	4,294
160 Hahnemann University	8,244	7,809	6,818	6,792	9,094	9,520	6,656	5,929
Total, 1st 160 insts.	9,068,821	8,485,662	7,741,206	6,929,965	6,337,445	5,732,067	5,129,163	4,704,028
161 Medical Col of Georgia	8,045	7,392	7,621	7,705	7,331	6,387	5,604	5,756
162 Southern Ill U-Carbondale	8,035	6,571	6,816	6,045	5,644	5,668	4,717	4,163
163 Eastern VA Medical School	7,782	6,887	5,291	2,611	2,092I	1,576I	1,060I	544
164 NC Ag & Tech State Univ	7,503	5,752	5,717	3,603	4,763	4,373	4,124	4,488
165 University of Denver	7,476	6,825	6,453	8,742	9,518	10,265E	11,012E	11,759E
166 Wright State University	7,426	5,714	5,012	3,695	3,939	2,956	3,112	3,035
167 San Jose State University	7,370	7,220	5,944	5,614I	5,284I	4,954I	4,624I	4,294I
168 Univ of South Alabama	7,237	6,966	5,273	4,715	4,866	4,652	4,051	3,502I
169 Old Dominion U Res Fdn	7,036	6,175	5,334	4,444	4,297I	4,151I	4,005	3,398E
170 Polytechnic University	7,025	6,824	6,561	6,729	5,771	4,821	4,398	4,113
Total, 1st 170 insts.	9,143,756	8,551,988	7,801,228	6,983,868	6,390,950	5,781,870	5,175,870	4,749,080
171 The University of Alabama	6,941	6,542	6,376	5,139	3,455	3,242	2,464I	1,686I
172 Oregon Grad Inst Sci/Tech	6,837	6,582	6,513	4,997	4,218I	3,441I	2,664	2,387I
173 Boston College	6,798	5,824	5,891	4,765	4,550I	4,336	4,604I	4,871
174 Catholic Univ of America	6,783	6,077	5,446	5,061	3,777	4,003	3,603	2,899
175 Drexel University	6,761	6,371	6,600	7,870	6,635	5,623	4,217	4,291
176 Univ of Wis-Milwaukee	6,715	5,447	4,662	3,939	3,643	3,211	3,505	3,383
177 U of Arkansas Med Sci Cam	6,654	5,258	5,846	4,561	3,773	3,417	3,291	3,950
178 College of William & Mary	6,460	5,349	4,942	4,020	4,100	4,150	2,624	2,095
179 North Dakota State Univ	6,417	5,292	4,210	2,870	1,970	2,622I	3,273I	3,924
180 Meharry Medical College	6,391	6,397	5,125	4,414	3,759I	3,107I	2,455I	1,803
Total, 1st 180 insts.	9,210,513	8,611,127	7,856,839	7,031,504	6,430,830	5,819,022	5,208,570	4,780,369
181 Loyola Univ - Chicago	6,203	6,051	4,447	3,804	3,303	2,876	2,932	2,793
182 Rush University	6,083	7,582	6,553	7,823	7,191	6,649	6,015	7,137
183 Albany Med Ctr Grad Sch	6,073	7,259	7,915	8,795	8,483I	8,175I	7,867I	7,559I
184 Michigan Tech University	6,045	5,210	6,226	4,757	3,969	3,901	4,496	3,568
185 Med Col of Ohio at Toledo	5,956	5,855	4,530	5,756	5,450I	5,145I	4,840I	4,535I
186 Univ of Texas at Dallas	5,888	6,812	7,109	7,850	6,029	5,461	4,748	4,128
187 N Mex Inst Mining & Tech	5,610	7,183	5,492	8,923	7,130	5,891I	4,653	4,734I
188 Alabama A & M University	5,560	4,801	5,121	4,356	3,830I	3,304I	2,778	2,057
189 Univ of Texas at El Paso	5,451	2,561	1,893	2,068	1,493	950	929	720
190 Univ of P R-Med Sci Cmpus	5,366	5,235	4,218	5,389	5,078I	4,768I	4,458I	4,148I
Total, 1st 190 insts.	9,268,748	8,669,676	7,910,343	7,091,025	6,482,786	5,866,142	5,252,286	4,821,748
191 Brigham Young University	5,357	4,785	5,660	5,020	4,128I	3,237	2,747	2,479
192 Colorado School of Mines	5,310	4,435	4,997	5,146	4,718	3,841	3,142	3,675
193 Morehouse School of Med	5,149	4,238	1,815	0	0I	0I	0	0
194 Tuskegee University	4,783	4,967	3,543	2,598	1,689I	781	890I	998E
195 University of Lowell	4,662	5,974	5,608	5,087	6,096	3,838	2,059	2,075
196 Kent State University	4,656	2,613	3,027	2,993	2,218	2,225	1,947	1,495
197 CUNY Hunter College	4,531	4,065	4,223	4,373	4,031	2,950	2,125	2,723
198 U of MD Baltimore County	4,147	3,457	3,626	2,743	2,437	2,250	1,699	1,657
199 Ohio University	4,140	3,722	3,540	2,828	2,893	2,295	1,834	2,012
200 Southern U & A&M College	4,094	3,233	3,112	2,196	2,715	3,071	3,023	2,401
Total, 1st 200 insts.	9,315,577	8,711,165	7,949,494	7,124,009	6,513,711	5,890,630	5,271,752	4,841,263

See explanatory information, if any, and SOURCE(S) at end of table.

BEST COPY AVAILABLE

Table B-33. Federally financed R&D expenditures at universities and colleges: fiscal years 1983-90

[Dollars in thousands]

Institution ranking	Federally financed							
	1990	1989	1988	1987	1986	1985	1984	1983
201 Univ of Sthrn Mississippi	3,944	3,588	2,484	1,858	1,311	1,025	797I	569
202 Illinois Inst of Tech	3,887	3,947	5,277	6,586	3,986	4,510	4,647	3,891
203 Univ of Missouri Rolla	3,863	3,459	3,670	4,261	3,906	4,074	3,994	3,468
204 Clarkson University	3,841	4,359	3,141	5,553	4,676	3,296	2,741	2,769
205 SUNY at Binghamton	3,702	5,914	2,732	2,773	3,341	3,165	3,084	3,438
206 Cleveland State Univ	3,695	6,760	2,047	2,019	1,648	1,498	1,250	1,261
207 South Dakota State Univ	3,666	3,254	3,343	3,022	3,266	492	2,375	2,462
208 Georgia State University	3,621	2,507	2,340	2,106	1,161	978	1,033	818
209 Mercer University	3,590	1,812	386	381	313	152	178I	203
210 U Hlth Sci/Chcgo Med Sch	3,547	3,269	3,246	2,147	1,784	1,636	1,501I	1,366I
Total, 1st 210 insts.	9,352,933	8,743,034	7,980,160	7,154,415	6,539,103	5,911,456	5,293,352	4,861,508
211 American University	3,532	3,480	3,623	2,980	2,425I	1,870I	1,315I	760
212 East Carolina University	3,499	2,690	2,668	1,919	2,193	1,635I	1,078	863
213 University of Montana	3,468	2,771	2,925E	2,572	2,337I	2,103E	1,975I	1,848
214 Prairie View A & M Univ	3,406	3,568	1,560E	1,334	1,824I	2,313I	2,802I	3,291I
215 Jackson State University	3,381	3,624	2,801	2,040	1,862I	1,688I	1,514I	1,340I
216 Loma Linda University	3,349	5,294	3,867	4,801	3,834I	2,867	2,532I	2,199I
217 Tennessee State Univ	3,290	3,382	3,382	2,717	2,660	2,412E	2,164	1,789E
218 Northern Illinois Univ	3,251	2,948	2,360	1,897	1,870	1,793I	1,718I	1,643
219 Chas R Drew U of Med & Sc	3,098I	2,898	2,826	2,913	1,942I	971I	0	0
220 University of Akron	3,005	2,525	2,199	1,785	1,824	1,350	1,444	754
Total, 1st 220 insts.	9,386,212	8,773,214	8,008,371	7,179,373	6,561,874	5,930,458	5,309,894	4,875,995
221 CUNY Grad Sch & Univ Ctr	2,990	2,112	1,690	1,848	1,833	1,056	807	1,388
222 Univ of P R-Rio Piedras	2,980	2,855	3,662	3,217	2,927I	2,638I	2,349I	2,060I
223 Stevens Institute of Tech	2,960	2,532	2,838	4,100	3,839I	3,579I	3,319	2,905
224 Kentucky State University	2,856	1,721	1,697	1,827	1,636I	1,446I	1,256	1,151I
225 Univ of Missouri Kan City	2,767	2,391	1,485	812	670	373	322	352
226 Northern Arizona Univ	2,749	2,683	2,315	1,922	1,101	1,213	741	423
227 Virginia State University	2,744	2,056	2,476	2,326I	2,176I	2,026	2,293	2,153I
228 N J Inst of Technology	2,731	1,082	1,085	847	940	881	777	692
229 Portland State University	2,693	1,999	1,923	1,999	1,676I	1,353	1,177	1,196I
230 Memphis State University	2,666	2,299	1,647	1,268	908	650	578	509
Total, 1st 230 insts.	9,414,348	8,794,944	8,029,189	7,199,539	6,579,580	5,945,673	5,323,513	4,888,824
231 U of the Virgin Islands	2,639E	2,600	2,578	1,447E	1,043	742	581	568I
232 Louisiana Tech University	2,629	2,842	760	828	745I	663I	581I	499
233 Lincoln University	2,600	2,706	NA	NA	NA	NA	NA	NA
234 George Mason University	2,494	1,171	1,480	571	474I	379I	284	250I
235 Creighton University	2,405	2,386	1,828	1,520I	1,213I	906	913	892
236 U of MD Center For EES	2,379	2,519	2,542	2,629	2,227	1,572	920	850
237 Worcester Poly Institute	2,365	2,411	1,655	1,087	1,191I	1,292I	1,393I	1,494
238 Fairleigh Dickinson Univ	2,364	2,355	3,274	2,402	1,501	1,007	1,007	768
239 Central State University	2,323	449	NA	NA	NA	NA	NA	NA
240 Hampton University	2,307	2,168	NA	NA	NA	NA	NA	NA
Total, 1st 240 insts.	9,438,853	8,816,551	8,043,306	7,210,023	6,587,974	5,952,234	5,329,192	4,894,145
241 S Dak Sch Mines & Tech	2,268	2,128	1,815	1,462	1,251	1,207	1,138I	1,069I
242 Air Force Inst of Tech/Nr	2,200	1,800I	1,400	456	370I	285	146	130
243 University of Toledo	2,101	1,966	1,894	1,583I	1,273	1,005	829	627
244 Texas Col of Osteo Med	2,031	2,518	2,508	2,381	1,914	1,816I	1,718I	1,620
245 Florida Atlantic Univ	2,010	1,295	847	648	659	543E	494	473
246 CUNY Queens College	1,987	1,919	1,612	1,461I	1,312I	1,163I	1,014I	865
247 Univ of North Texas	1,974	2,813	2,828	3,022	2,506	2,482	2,805	3,249
248 SUNY Col of Env Sci & For	1,973	1,883	1,669	1,209	1,379I	1,549	1,597I	1,643I
249 Wesleyan University	1,949	2,193	2,007	1,890	1,841	2,104	2,932I	3,760E
250 Fort Valley State Univ.	1,938	1,741	NA	NA	NA	NA	NA	NA
Total, 1st 250 insts.	9,459,284	8,836,807	8,059,886	7,224,135	6,600,479	5,964,388	5,341,865	4,907,581

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-33. Federally financed R&D expenditures at universities and colleges: fiscal years 1983-90

[Dollars in thousands]

Institution ranking	Federally financed							
	1990	1989	1988	1987	1986	1985	1984	1983
251 Xavier University of LA	1,902	1,294	NA	NA	NA	NA	NA	NA
252 Bowling Green State Univ	1,882	1,770	1,475	1,037	1,338	1,060	1,034	1,000
253 Oakland University	1,882	2,767	2,475	3,035	2,747I	2,461I	2,175I	1,889
254 Marquette University	1,855	1,487	1,671	1,080	965	1,274	1,152	1,006
255 Univ of Tex at Arlington	1,795	1,406	2,255	1,667	955	930	832	577
256 Fordham University	1,723	2,063	1,752	1,805	1,525I	1,245I	965	1,043
257 U of MD Eastern Shore	1,552	2,203	1,736	1,522	1,606	1,414I	1,223I	1,032E
258 Univ of Wis-Superior	1,550	1,495	1,309	1,414	1,253	1,243	1,116	954
259 Alcorn State University	1,487	1,850	1,692I	1,623I	1,554I	1,485	1,359I	1,237I
260 University of D C	1,455	1,330I	1,205	738	1,706	1,508	678	505
Total, 1st 260 insts.	9,476,367	8,854,472	8,075,456	7,238,056	6,614,128	5,977,008	5,352,399	4,916,824
261 Wentworth Inst of Tech	1,435	1,383	1,457	1,431I	1,405I	1,379I	1,353I	1,327
262 OSU College of Osteo Med	1,368	715	916	651	420	349I	282I	215I
263 Miami University (Ohio)	1,365	1,659	1,479I	1,301I	1,123I	945I	767	651
264 Texas Southern Univ	1,363	1,293	1,419	1,263I	1,107I	951	302	396
265 Texas Christian Univ	1,362	488	302	493	636	447	291	642
266 Nova University	1,341	981	839	779	632I	486	564	646
267 Univ of N C at Charlotte	1,327	817	483	434I	386I	338I	290I	242I
268 Lamar University	1,317	388	2	64	58	62	10	0
269 South Carolina St College	1,308	1,014I	721	810I	899I	988I	1,077I	1,166I
270 Seton Hall University	1,302I	1,236I	1,135I	1,027I	935I	843I	763I	710I
Total, 1st 270 insts.	9,489,855	8,864,446	8,084,209	7,246,309	6,621,729	5,983,796	5,358,098	4,922,819
271 Tenn Technological Univ	1,286	743	731	711	606I	501	401	482
272 Bryn Mawr College	1,252	536	687	696	435	427	372	478
273 Florida Inst of Tech	1,251	898	552	577	656	712	703	604
274 Marshall University	1,244	1,647	1,484	901	818	836	772	590
275 Amherst College	1,233	1,047	1,091	1,015I	942I	869I	796I	723
276 East Tennessee State Univ	1,219	919	447	486	427I	368	220	434
277 Langston University	1,200	1,961	NA	NA	NA	NA	NA	NA
278 Illinois State University	1,193	973	1,011	854	642	624I	609I	594I
279 Univ of Ark Pine Bluff	1,188	1,148	1,199	1,047	1,010	1,002	885	1,056E
280 Univ of Missouri St Louis	1,167	1,430	779	698	913	592	574	403
Total, 1st 280 insts.	9,502,088	8,875,748	8,092,190	7,253,294	6,628,178	5,989,727	5,363,430	4,928,183
281 Cal Sch Prof Psych-L A	1,163	1,383	322	164	164	0	0	0
282 Fisk University	1,156	1,131	1,379	777	661I	545I	429I	313I
283 Eastern Washington Univ	1,061	738	532	488	559	519	614I	707I
284 Wichita State University	1,041	1,921	3,228	1,175	746	936	762	547
285 University of Tulsa	1,037	926	911	823I	736I	649	510	702
286 Cal Sch Prof Psych-Fresno	985	1,566	940	476	238I	0	0	0
287 Inst Paper Sci and Tech	965	1,382	1,049	1,469	867	658	604	565
288 Union College (NY)	944	478	221	205I	191I	177	172	92
289 Villanova University	943	885	223	459	366I	274	221	322I
290 Univ of South Dakota	940	784	685	645I	605I	565I	525	689
Total, 1st 290 insts.	9,512,323	8,886,942	8,101,680	7,259,975	6,633,311	5,994,050	5,367,267	4,932,120
291 SUNY College Plattsburgh	930	755	912	742	469	278	133	0
292 Delaware State College	920	920	NA	NA	NA	NA	NA	NA
293 Clark University	919	794	820	942	1,139I	1,332I	1,525I	1,718I
294 Ponce School of Medicine	919	782	642	602	607	11I	0	0
295 University of the Pacific	897	990	941I	894I	847I	800I	753I	706I
296 Univ of Southwestern LA	874	818	863	589	518I	448	457I	466
297 Morehouse College	868	997	NA	NA	NA	NA	NA	NA
298 Norfolk State University	825	648	400	266	456	588	584I	583I
299 Univ of N C at Greensboro	806	596	278	370	256	320	256	241I
300 Selma University	790	816	NA	NA	NA	NA	NA	NA
Total, 1st 300 insts.	9,521,071	8,895,058	8,106,536	7,264,380	6,637,603	5,997,827	5,370,975	4,935,834

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-33. Federally financed R&D expenditures at universities and colleges: fiscal years 1983-90

[Dollars in thousands]

Institution ranking	Federally financed							
	1990	1989	1988	1987	1986	1985	1984	1983
301 NE Ohio Univ Med School	708	811	719	612	681	673	657	568
302 Baylor Col of Dentistry	682	641	525	450	407	198	186	135
303 Texas A & I University	661	1,118	847	742I	640I	538I	436I	334
304 CUNY York College	655	754	673	559	634I	708	483	541
305 Morgan State University	655	638	742E	346	860	751I	645I	539I
306 Lincoln University (PA)	632	692E	789	591I	394I	197I	0	0
307 De Paul University	623	772	468	189	142I	96E	94	80
308 Western Michigan Univ	585	488I	391	227	306	196	217	94E
309 Univ of Wis-Parkside	581	651	497	465I	433I	401I	369I	337
310 CUNY Col Staten Island	576	579	371	334I	301I	268I	235I	202I
Total, 1st 310 insts.	9,527,429	8,902,202	8,112,558	7,268,895	6,642,401	6,001,853	5,374,297	4,938,664
311 Tougaloo College	566	787	NA	NA	NA	NA	NA	NA
312 Santa Clara University	550	672	712	746E	642	843	790	855
313 Idaho State University	549	378	226	268	341	307	327	230
314 Barnard College	546	665	587	542I	499I	456I	413I	370
315 U Ctrl Del Caribe Esc Med	546	640	525	577	809	165	0	0
316 Winston-Salem State Univ	532	650	NA	NA	NA	NA	NA	NA
317 Canisius College	524	194	279	243I	211I	179I	147I	115
318 SUNY College Buffalo	520	583I	641I	699I	757I	815I	873I	931I
319 St John's University (NY)	519	361	306	290I	274I	258E	138E	97E
320 Albany State College	516	653	348	263E	207I	152I	97	133
Total, 1st 320 insts.	9,532,797	8,907,785	8,116,184	7,272,523	6,646,141	6,005,028	5,377,082	4,941,395
321 Cal Poly St U San Luis Ob	496	475	653	586I	523I	460I	397I	334I
322 Bethune Cookman College	494	420	NA	NA	NA	NA	NA	NA
323 Texas Woman's University	476	325	243	173	209	211	137	212
324 Johnson C. Smith Univ	467	480	NA	NA	NA	NA	NA	NA
325 Morris Brown College	464E	164	NA	NA	NA	NA	NA	NA
326 Southern Univ-New Orleans	459I	420E	NA	NA	NA	NA	NA	NA
327 Hofstra University	445	256	91	215	201	210	128	108
328 Alabama State University	403	456	NA	NA	NA	NA	NA	NA
329 Coppin State College	387	388	NA	NA	NA	NA	NA	NA
330 Phila Col of Pharm & Sci	381	288	49	47	83	58	81	99I
Total, 1st 330 insts.	9,537,269	8,911,457	8,117,220	7,273,544	6,647,157	6,005,967	5,377,825	4,942,148
331 Baylor University	369	346	353	329	263I	200I	137I	74
332 Calif St Poly Univ Pomona	366	362	503	422I	345I	268I	191I	114
333 Bennett College	358	229	NA	NA	NA	NA	NA	NA
334 Spelman College	348	272	NA	NA	NA	NA	NA	NA
335 Alfred University	344	449	285	382	349	435	129	184
336 Chicago Col of Osteo Med	318	314	526	419	119	101	127	196
337 Indiana State University	314	340	340	184	203	234I	263I	292
338 University of Portland	311	0	200	160I	120I	80I	40I	0
339 Occidental College	300	442	376	334I	296I	258I	220I	182
340 Smith College	298	903	411	375I	339I	303I	267I	231
Total, 1st 340 insts.	9,540,595	8,915,114	8,120,214	7,276,149	6,649,191	6,007,846	5,379,199	4,943,421
341 SUNY College Brockport	297	230	155	144I	135I	126I	117I	108I
342 Adelphi University	295I	280	192I	105	138I	169I	200I	231
343 SUNY St Coll of Optometry	294	292	286	398	344I	292I	240I	188
344 New Sch For Soc Research	293	251	384	422	298I	174I	50	45
345 Stephen F Austin St Univ	289	332	283	233	308I	382I	456	163
346 Univ of Wis-Eau Claire	268	355	254	218I	182I	146I	110I	74
347 Univ of Wis-Green Bay	267	252	165	212I	258I	304I	350I	396
348 Pomona College	266	370	358	435I	512I	589I	666I	743I
349 Catholic U of PR	265	492	416	513	508I	504I	500	551
350 Knox College	261I	239	164	145I	126I	107I	88I	69
Total, 1st 350 insts.	9,543,390	8,918,207	8,122,871	7,278,974	6,652,000	6,010,639	5,381,976	4,945,989

See explanatory information, if any, and SOURCE(S) at end of table.

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Table B-33. Federally financed R&D expenditures at universities and colleges: fiscal years 1983-90

(Dollars in thousands)

Institution ranking	Federally financed							
	1990	1989	1988	1987	1986	1985	1984	1983
351 University of Detroit	245	55	34	82I	129I	176I	223I	270
352 Pacific Lutheran Univ	244	10	35	43I	44I	45I	46I	47I
353 Univ of Wis-Oshkosh	238	161	147	127I	109I	91I	73I	55
354 Northeast Louisiana Univ	231	56	35	25	6	9	14	15
355 Oakwood College	226	0	NA	NA	NA	NA	NA	NA
356 Savannah State College	221	179	NA	NA	NA	NA	NA	NA
357 Duquesne University	216	68	68	68	54I	45I	36I	27I
358 Univ of West Florida	213	327	436	709I	982I	1,255I	1,528I	1,801
359 CUNY Bernard Baruch Col	207	287	125	125I	125I	125I	125I	125I
360 Claflin College	203	0E	NA	NA	NA	NA	NA	NA
Total, 1st 360 insts.	9,545,634	8,919,350	8,123,751	7,280,153	6,653,449	6,012,385	5,384,021	4,948,329
361 SUNY College Geneseo	200	151	173	142I	111I	80I	49I	18
362 North Carolina Cntrl Univ	199	422E	350	317I	286I	255I	224I	193I
363 Kirksville Col Osteo Med	198	306	517I	727	641I	562I	483I	404I
364 Univ of Nebraska at Omaha	187	62	56	75	24	1	0	2
365 Univ of Wis-La Crosse	185	108	79	116	70	227	218	188
366 Grambling State Univ	182	106	64	129	131I	132I	133I	134I
367 Columbia U Teachers Col	181	230	186	460	367I	274I	181I	88
368 Sul Ross State University	171	98	107	96I	87I	78I	69I	60
369 Univ of Wis-Stevens Point	167	226	180	208I	236I	264I	292I	320
370 Rust College	156	214	NA	NA	NA	NA	NA	NA
Total, 1st 370 insts.	9,547,460	8,921,273	8,125,463	7,282,422	6,655,402	6,014,258	5,385,670	4,949,736
371 Fayetteville State Univ	154	258	NA	NA	NA	NA	NA	NA
372 Ball State University	153	178	197	317	293	272	209	207
373 St Olaf College	151	97	153	166I	178I	190I	202I	214
374 Augsburg College	139	115	90	80I	71I	62I	53I	44I
375 West Virginia State Col	138	75	NA	NA	NA	NA	NA	NA
376 Univ of Northern Iowa	136	108	91	74I	59I	44I	29I	14
377 Southern Univ-Shreveport	131	148	NA	NA	NA	NA	NA	NA
378 Univ of Wis-Stout	121	39	82	63I	48I	33I	18I	3
379 Philander Smith College	120	154	NA	NA	NA	NA	NA	NA
380 Arkansas State University	119	83	46	61I	73I	85I	97I	109I
Total, 1st 380 insts.	9,548,822	8,922,528	8,126,122	7,283,183	6,656,124	6,014,944	5,386,278	4,950,327
381 Univ of Missouri Sys Off	116	678	756	858	759	627	382	431
382 East Texas State Univ	113	89	1	12	8	0	0	0
383 SUNY College New Paltz	112	54	1	103	85I	67I	49I	31
384 Abilene Christian Univ	103	89	66	56I	47I	38I	29I	20
385 Andrews University	96	24	23E	20I	19I	18I	17I	16
386 Sam Houston State Univ	93	84	75	115	114	95	177	88
387 Tarleton State University	88	0	0	0	0I	0I	0	12
388 US International Univ	88	61	0	0	0	0I	0	0
389 Phila Col Osteopathic Med	83	302	179	168	71	35I	0	0
390 Jarvis Christian College	75	60	NA	NA	NA	NA	NA	NA
Total, 1st 390 insts.	9,549,789	8,923,969	8,127,221	7,284,515	6,657,227	6,015,824	5,386,932	4,950,925
391 SUNY College Cortland	75	102	78	67I	58I	49I	40I	31
392 SUNY College Fredonia	74	98I	121	101I	83I	65I	47I	29
393 Chapman College	72	75E	75	60I	48I	36I	24I	12I
394 SUNY College Oswego	71	76	58	236	229I	223	187	139I
395 Northeastern Ill Univ	68	26	0	13I	22I	31I	40I	49
396 Central Michigan Univ	60	179	276	134	110	0	111	30
397 Long Island University	57	191	346	247	64	11	19	17
398 Knoxville College	55I	50	NA	NA	NA	NA	NA	NA
399 Univ of Northern Colorado	54	66	0	10	0	0	0	0
400 Seattle University	52	74	64	0	5I	10E	0	0I
Total, 1st 400 insts.	9,550,427	8,924,906	8,128,239	7,285,383	6,657,846	6,016,249	5,387,400	4,951,232

See explanatory information, if any, and SOURCE(S) at end of table.

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Table B-33. Federally financed R&D expenditures at universities and colleges: fiscal years 1983-90

[Dollars in thousands]

Institution ranking	Federally financed							
	1990	1989	1988	1987	1986	1985	1984	1983
401 Claremont Univ Ctr & Grad	47	106	337	343	354	364	374	384
402 Monmouth College (NJ)	46	100	0	0	0	0	0	0
403 Miss Valley State Univ	43	14	31	0	0	0	0	0
404 Southern Oregon St Col	43	56	0	0	0	2	8	35
405 Univ Osteo Med & Hlth Sci	43	86	88	0	0	0	0	0
406 Univ of Wis-Whitewater	42	107	37	28	21	14	7	0
407 West Texas State Univ	40	120	124	177	66	76	132	112
408 Kutztown Univ of Penn	37	37	31	35	39	43	47	51
409 Bowie State University	35	0	NA	NA	NA	NA	NA	NA
410 Goucher College	32	27	25	33	37	41	45	49
Total, 1st 410 insts.	9,550,835	8,925,559	8,128,912	7,285,999	6,658,363	6,016,789	5,388,013	4,951,863
411 Univ of Wis-River Falls	27	43	35	28	23	18	13	8
412 W VA Schl Osteopathic Med	23	30	22	11	5	0	0	0
413 SUNY College Oneonta	22	0	0	17	31	45	59	73
414 SUNY College Potsdam	22	27	11	25	33	41	49	57
415 Northeast Missouri St U	18	122	38	50	25	0	8	14
416 Elizabeth City State Univ	15	26	NA	NA	NA	NA	NA	NA
417 Colorado College	5	0	0	11	16	21	26	31
418 Trenholm State Tech Col	5	5	NA	NA	NA	NA	NA	NA
419 Drake University	3	12	21	26	30	34	38	42
420 Antioch University	0	0	0	1	2	3	4	5E
Total, 1st 420 insts.	9,550,975	8,925,824	8,129,039	7,286,168	6,658,528	6,016,951	5,388,210	4,952,093
421 Bemidji State University	0	11	14	8	6	4	2	0
422 Benedict College	0	0	NA	NA	NA	NA	NA	NA
423 Biola University	0	0	0	0	0	0	0	0
424 Cal Sch Prof Psych-Berkly	0	0	0	0	0	0	0	0
425 Cal Sch Prof Psych-S D	0	0	0	0	0	0	0	0
426 Calif St Univ Stanislaus	0	0	0	0	0	0	0	0
427 Cheyney University of PA	0	0E	NA	NA	NA	NA	NA	NA
428 Clark Atlanta University	0	0E	NA	NA	NA	NA	NA	NA
429 Col Osteo Med of Pacific	0	0	0	0	0	0	0	0
430 Dillard University	0	0	0	0	0	0	0	0
Total, 1st 430 insts.	9,550,975	8,925,835	8,129,053	7,286,176	6,658,534	6,016,955	5,388,212	4,952,093
431 East Stroudsburg U of PA	0	165	107	90	75	60	45	30
432 Fielding Institute	0	0	0	0	0	0	0	0
433 Fuller Theological Sem	0	3	0	0	9	0	0	0
434 Grand Valley State Univ	0	7	0	5	10	15	20	25
435 Institute of Textile Tech	0	0	0	0	0	0	0	0
436 Mass Col Phar/Allied Hlth	0	0	51	91	131	171	211	25
437 Mayo Grad School of Med	0	0	0	0	0	0	0	0
438 Milwaukee School of Eng	0	0	0	0	0	0	0	0
439 Montclair State College	0	0	11	9	10	11	12	13
440 New York Inst Technology	0	0	352	373	442	510	771	228
Total, 1st 440 insts.	9,550,975	8,926,010	8,129,518	7,286,662	6,659,093	6,017,568	5,389,081	4,952,414
441 Northwestern St Univ La	0	0	0	2	3	4	5	6
442 Oral Roberts University	0	290	388	378	369	360	0	0
443 Paul Quinn College	0	0	NA	NA	NA	NA	NA	NA
444 Providence College	0	0	0	0	0	0	0	0
445 Rand Grad Inst Pol Stdies	0	0	0	0	0	0	0	0
446 Shaw University	0	0	NA	NA	NA	NA	NA	NA
447 Slippery Rock Univ of PA	0	0	0	0	0	0	0	0
448 St Bonaventure University	0	0	0	0	0	0	0	0
449 St Louis Community Col	0	0	0	0	0	0	0	0
450 Stillman College	0	0	NA	NA	NA	NA	NA	NA
Total, 1st 450 insts.	9,550,975	8,926,300	8,129,906	7,287,042	6,659,465	6,017,932	5,389,086	4,952,420

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-33. Federally financed R&D expenditures at universities and colleges: fiscal years 1983-90

[Dollars in thousands]

Institution ranking	Federally financed							
	1990	1989	1988	1987	1986	1985	1984	1983
451 Talladega College	0	350	NA	NA	NA	NA	NA	NA
452 The Wright Institute	0	0	0	0	0	199I	398I	597I
453 U of California System	0	0	473	528	547	524	465	364
454 Union Institute	0	0	0	0	0I	0I	0	0
455 Univ of Health Sciences	0	0	0	0	0I	0I	0	0
456 Univ of Wis-Platteville	0	0	0	1I	1I	1I	1I	1
457 Voorhees College	0	0	NA	NA	NA	NA	NA	NA
458 Wiley College	0	0	NA	NA	NA	NA	NA	NA
459 Xavier University	0	0	0	451	881	1311	1741	2171
Total, 1st 459 insts.	9,550,975	8,926,650	8,130,379	7,287,616	6,660,101	6,018,787	5,390,124	4,953,599
Total, all other sampled insts.	0	0	50,867	45,460	42,560	37,732	33,685	29,617
Estimated total non-sampled insts.	60,070	57,336	0	0	0	0	0	0

1/ Includes Applied Physics Laboratory with $406 million in federally financed R&D expenditures.

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-34. Non-Federal R&D expenditures at universities and colleges: fiscal years 1983-90

[Dollars in thousands]

Institution ranking	Non-Federal							
	1990	1989	1988	1987	1986	1985	1984	1983
Total, all institutions	6,713,565	6,025,098	5,282,622	4,821,173	4,223,566	3,630,443	3,193,373	2,894,041
1 Texas A & M University	179,799	157,122	140,998	144,421	131,416E	113,553E	104,196E	93,072E
2 University of Minnesota	148,236	125,734	116,326	113,378	101,435	85,546	78,734	71,804
3 Univ of Wis-Madison	130,979	116,530	109,034	104,828	92,315	84,536	73,486	68,256
4 University of Michigan	130,122	106,030	89,315	87,332	69,790	57,566	56,646	48,744
5 Cornell University	128,895	128,749	117,997	109,367	90,740	83,907	68,683	63,138
6 Univ of Cal Davis	120,651	107,579	91,220	87,176	75,239	67,210	60,355	54,679
7 Pennsylvania State Univ	120,270	105,284	82,424	72,641	63,858	43,097	34,617	32,892
8 Univ of Texas at Austin	118,610	99,026	82,626	80,536	70,172	61,628	58,182	55,339
9 University of Georgia	112,878	103,156	97,989	89,181	79,561	62,850	57,248	48,231
10 Univ of Ill Urbana	110,572	96,192	87,760	84,262	74,951	59,027	48,016	39,329
Total, 1st 10 insts.	1,301,012	1,145,402	1,015,689	973,122	849,477	718,820	640,163	572,484
11 University of Arizona	102,713	93,586	82,155	73,702	62,817	54,071	47,535	44,451
12 Ohio State University	99,691	98,001	85,517	64,691	56,205	50,110	41,342	39,422
13 Univ of MD College Park	99,612	90,586	80,166	71,045	57,881	52,540	47,028	46,420E
14 Univ of Cal Berkeley	99,344	85,596	69,807	66,445	56,412	53,121	46,158	42,034
15 Rutgers the St Univ of NJ	97,008	88,678	75,946	67,377	55,835	35,445	31,584	30,835
16 N C State Univ at Raleigh	87,346	85,658	76,030	68,985	61,844	59,767	50,156	36,623
17 Louisiana State Univ	87,047	82,243	79,120	70,981	63,901	64,194	53,858	51,622
18 Univ of Cal Los Angeles	82,353	68,826	62,392	58,068	46,490	40,055	35,610	29,567
19 Iowa St U of Sci & Tech	81,902	74,279	63,420	58,669	55,266	51,246	41,717	43,811
20 Baylor Col of Medicine	79,329	65,345	45,989	40,345	22,264	21,448	19,368	18,214
Total, 1st 20 insts.	2,217,357	1,978,200	1,736,231	1,613,430	1,388,392	1,200,817	1,054,519	955,483
21 Mass Inst of Technology	77,954	72,017	60,165	57,631	56,629	53,031	47,196	37,548
22 VA Polytech Inst & St U	75,474	65,669	56,184	48,423	45,191	36,316	30,023	27,396
23 University of Florida	75,064	65,039	52,392	52,934	48,776	49,867	45,111	39,759
24 Georgia Institute of Tech	73,351	76,616	64,253	57,210	47,025	40,096	37,266	33,391
25 Northwestern University	70,167	61,481	48,510	39,634	33,423	30,020	27,537	14,556
26 University of Connecticut	69,872	63,144	50,677	44,691	38,145	36,211	24,575	23,942
27 Johns Hopkins Univ	69,064	58,211	48,007	34,606	28,130	31,577	19,032	20,729E
28 Michigan State University	68,766	69,715	66,549	66,821	53,136	45,910	41,293	35,976
29 Univ. Of Tennessee System	68,142	67,057	58,761	54,618	43,680	40,722	29,576	27,648
30 Harvard University	66,722	66,068	57,426	49,119	42,887	34,507E	30,900E	28,778E
Total, 1st 30 insts.	2,931,933	2,643,217	2,299,155	2,121,117	1,825,414	1,598,474	1,387,028	1,245,206
31 Purdue University	65,915	60,344	54,634	50,829	45,651	40,324	39,954	33,363
32 Univ of Cal San Francisco	63,021	59,540	55,542	52,134	42,091	35,733	30,582	22,212
33 UT MD Anderson Cancer Ctr	62,394	56,911	48,513	43,255	42,014	36,729	32,938	29,397
34 Univ of Missouri Columbia	59,889	51,743	46,195	40,962	37,585	35,188	28,750	28,088
35 Univ of Pennsylvania	55,643	49,934	44,138	47,149	46,821	37,504	32,132	32,983
36 Univ of Nebraska-Lincoln	54,912	42,478	35,340	31,554	34,335	30,653	28,725	31,847
37 Univ of Cal San Diego	54,477	45,512	40,694	40,296	32,804	29,918	25,638	23,575
38 Stanford University	54,254I	47,344	44,932	36,499	31,086	26,762	25,155	22,573
39 Clemson University	52,443	44,215	36,227	37,479	31,413	22,361	23,232	19,821
40 Auburn University	52,166	38,635	34,494	34,599	36,037	26,042	21,529	18,093
Total, 1st 40 insts.	3,507,047	3,139,873	2,739,864	2,535,873	2,205,251	1,916,688	1,675,663	1,507,158
41 Oklahoma State University	47,941	39,539	43,786	37,845	37,417	37,261	39,557	34,018I
42 Univ of South Florida	45,923	34,397	31,555	30,743	4,363	3,641	3,350	2,959
43 Univ of Massachusetts	45,794	54,139	40,978	35,558	34,001	27,227	24,020	21,363
44 Washington University	45,490	31,590	28,986	25,662	21,827	19,183	19,855	15,007
45 Univ of Southern Cal	45,388	43,008	37,394	33,246	23,493	20,857	23,039	26,419
46 University of Kentucky	45,347	42,522	41,279	28,781	32,034	30,890	29,136	27,043
47 Univ of MD Balt Prof Sch	44,848	39,884	35,685	31,687	15,199	12,359I	9,520I	6,681I
48 SUNY at Buffalo	42,314	35,838	27,538	19,262	17,096	14,185	13,294	11,714
49 University of Washington	41,960	39,259	30,474	41,878	44,599	28,132	27,162	25,011
50 University of Oklahoma	41,774	36,936	33,721	30,897	23,065	25,061	24,126	26,781
Total, 1st 50 insts.	3,953,826	3,536,985	3,091,260	2,851,432	2,458,345	2,135,484	1,888,722	1,704,154

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-34. Non-Federal R&D expenditures at universities and colleges: fiscal years 1983-90

[Dollars in thousands]

Institution ranking	Non-Federal							
	1990	1989	1988	1987	1986	1985	1984	1983
51 Univ of Ill Chicago	41,300	40,041	35,662	30,131	24,737	22,377	19,715	19,948
52 Oregon State University	40,144	42,243	40,076	36,012	36,861	33,651	26,838	27,193
53 Washington State Univ	39,972	32,476	29,958	27,591	26,277	25,311	25,596	24,315
54 Princeton University	39,955	35,738	29,646	21,584	19,590	15,135	13,130	11,990
55 Univ of Cal Riverside	39,086	37,629	36,311	36,157	33,255	30,369	27,106	25,634
56 Rockefeller University	38,457	32,753	31,136	28,777	27,478	29,112	28,640	28,375
57 Univ. of Colorado	38,329	34,575	31,974	29,132	29,689	24,057	26,353	20,770
58 University of Virginia	38,014	30,067	27,090	22,594	18,931	16,501	9,868	9,056
59 Mississippi State Univ	37,066	35,976	31,449	28,018	31,032	30,225	28,100	27,939
60 University of Iowa	36,732	31,629	30,182	21,931	21,099	16,864	15,302	14,311
Total, 1st 60 insts.	4,342,881	3,890,112	3,414,744	3,133,359	2,723,294	2,379,086	2,109,170	1,913,685
61 Univ Alabama Birmingham	36,117	32,462	22,661	18,158	14,064	8,137	8,024	5,802
62 Yale University	35,744	32,304	29,236	28,875	28,472	18,323	17,802	15,064
63 Carnegie-Mellon Univ	35,651	36,556	31,042	29,946	30,214	22,626	20,368	12,628
64 Kans St U - Ag & App Sci	34,660	31,351	28,880	27,317	27,739	26,815	24,832	24,862
65 Duke University	34,655	32,054	27,728	21,631	15,952	12,462	10,232	8,232
66 University of Kansas	34,358	30,691	26,843	27,662	26,016	21,290I	16,564I	11,838I
67 Wayne State University	33,967	31,354	27,793	22,408	17,800	12,259	11,421	11,277
68 Univ of Hawaii-Manoa	33,860	30,159	25,718	22,873	22,061	19,139	18,350	17,768
69 Univ of Alaska Fairbanks	33,675	30,042	26,415E	25,909I	25,401I	24,893I	24,385I	23,877
70 University of New Mexico	32,279	29,036	22,867E	20,668E	14,046	12,541	9,819	9,414I
Total, 1st 70 insts.	4,687,847	4,206,121	3,683,927	3,378,806	2,945,059	2,557,568	2,270,967	2,054,447
71 Arizona State University	32,062	21,893	20,504	24,754	20,039	16,397	13,017	12,006
72 Indiana University	32,036	23,459	21,028	21,130	19,136	17,269	15,080	14,449
73 Univ of Med & Dent of N J	31,044	26,468	20,178	15,233	14,482	8,768	5,552	7,375
74 UT SW Medical Ctr-Dallas	30,954	28,666	22,035	17,556	14,115	12,584	13,286	9,895
75 Univ of NC at Chapel Hill	30,645	28,817	24,316	21,255	20,829	20,212	9,530	7,508
76 Emory University	30,407	18,216	17,228	22,191	18,296	4,570	4,626	4,121
77 Florida State University	30,006	29,747	26,652	25,004	22,329	18,059	17,786	11,957
78 University of Cincinnati	29,495	29,233	24,493	21,760	16,610	17,785	17,397	15,121
79 Tulane University	28,076	21,100	18,892	16,557	16,451	13,673	11,625	11,219
80 New York University	27,755	23,308	23,126	22,798	23,688	23,329	19,390	18,684
Total, 1st 80 insts.	4,990,327	4,457,028	3,902,379	3,586,983	3,131,034	2,710,214	2,400,256	2,166,782
81 Utah State University	27,485	27,495	24,510	19,234	19,537	15,810	16,659	17,653
82 West Virginia University	27,091	21,907	14,377	13,577	10,668	9,946	8,958	9,176
83 University of Pittsburgh	27,016	30,048	26,147	22,123	18,254	15,082	12,872	10,979
84 Univ of South Carolina	26,890	22,825	16,181	15,121	14,246	11,960	8,496	6,371
85 University of Utah	26,721	21,521	18,406	13,968	9,050	8,790	8,810	8,849
86 Columbia Univ Main Div	26,499	25,433	21,418	16,886	16,980	16,457	16,418	13,273
87 SUNY at Stony Brook	26,325	29,729	25,393	14,548	18,948E	15,549	13,802	11,302
88 University of Miami	26,200	27,197	21,812	27,106	27,623	25,218	20,413	16,047
89 Univ of Ark Fayetteville	26,132	23,887	19,911	19,739	19,954	16,402	15,212	14,625
90 Univ of Cal Irvine	25,582	20,314	17,206	13,553	11,651	9,686	7,094	5,809
Total, 1st 90 insts.	5,256,268	4,707,384	4,107,740	3,762,838	3,297,945	2,855,114	2,528,990	2,280,866
91 SUNY Hlth Sci Ctr - Syrcs	25,228	21,605	17,044	14,759	12,884	13,206	11,776	10,486
92 Unif Serv Univ of Hlth Sc	24,792	14,356	3,378	0	100	83	0	0
93 Rensselaer Polytech Inst	24,554	20,042	18,191	10,969	8,237	7,456	7,345	11,030
94 Texas Tech University	24,447	22,482	17,102	16,787	14,567	9,531	9,233I	8,935
95 University of Rochester	23,367	25,948	21,528	21,276	19,885	22,586	18,955	16,561
96 Temple University	23,285	20,250	20,804	17,661	14,037	8,270	6,921	6,065
97 Colorado State University	23,223	17,779	14,769	13,658	12,767	15,469	16,397	16,251
98 Case Western Reserve Univ	22,869	17,536	18,225	17,270	10,498E	9,416	7,880	7,728
99 University of Delaware	22,531	20,111	18,315	18,019	16,220	12,979	10,532	9,497
100 University of Chicago	21,628	18,970	17,574	15,990	14,722	12,979	13,012	13,329
Total, 1st 100 insts.	5,492,192	4,903,463	4,274,670	3,909,227	3,421,862	2,967,089	2,631,041	2,380,748

See explanatory information, if any, and SOURCE(S) at end of table.

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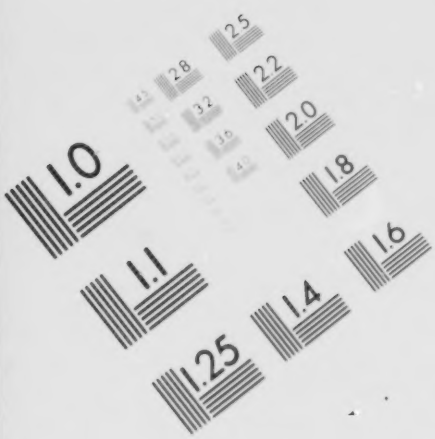
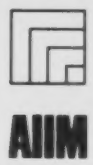
Table B-34. Non-Federal R&D expenditures at universities and colleges: fiscal years 1983-90

[Dollars in thousands]

Institution ranking	Non-Federal							
	1990	1989	1988	1987	1986	1985	1984	1983
101 Univ of Central Florida	21,264	19,838	7,831	6,870I	5,909E	4,611	4,808I	5,006
102 University of Idaho	21,124	19,672	19,108	15,350	14,081	6,804	6,573	5,957
103 Virginia Commonwlth Univ	21,124	17,042	11,801	11,234	11,487	8,405	5,103	4,237E
104 U of Houston	20,403	17,871	12,651	13,338	12,373	4,766	5,933	6,100
105 CUNY Mt Sinai Sch of Med	20,145	19,623	16,875	15,113	14,027	13,753	9,862	7,974
106 U Tex Med Brnch Galveston	18,917	15,565	13,330	7,613	8,005I	8,397	7,920	8,583
107 Yeshiva University	18,902	16,272	16,560	14,005	13,338	10,862	7,399	7,710
108 Montana State University	18,596	17,187	14,517	14,366I	14,215	12,643	14,470	12,587
109 Southern Ill U-Carbondale	17,838	16,786	13,494	12,609	13,170	15,703	10,864	6,311
110 N Mex Inst Mining & Tech	17,301	15,106	14,865	14,786	9,666	7,318I	4,969	3,951I
Total, 1st 110 insts.	5,687,806	5,078,425	4,415,702	4,034,511	3,538,133	3,059,351	2,708,943	2,449,164
111 SUNY Col of Env Sci & For	16,698	15,338	11,248	10,481	9,870I	9,259	7,988I	6,720I
112 U Tex Hlth Sci Ctr Houstn	16,690	17,360	15,687	10,431	9,960	7,543	5,794	4,952
113 New Mexico State Univ	16,600	15,270	17,520	20,768	18,523	16,963	12,487	10,829
114 U Tex Hlth Sci Ctr S Anto	16,232	13,177	12,145	12,007	10,386	10,148	9,361	8,738
115 Univ of P R-Mayaguez	16,218	15,229	14,212	15,759	14,545I	13,333I	12,121I	10,909I
116 Lehigh University	16,013	16,079	16,792	15,214	13,212	11,175	8,885	8,080
117 Univ of Rhode Island	15,335	14,279	12,973	8,080	7,872I	7,664	2,400	3,500I
118 Rush University	15,201	14,159	13,274	8,519	6,778	4,644	5,773	4,985
119 California Inst of Tech	15,153	14,564	13,780	15,479	15,068	9,005	7,019	6,484
120 Syracuse University	14,887	15,176	11,266	12,361	11,490	11,528	8,143	7,661
Total, 1st 120 insts.	5,846,833	5,229,056	4,554,599	4,163,610	3,655,837	3,160,613	2,788,914	2,522,022
121 Georgetown University	14,774	16,246	14,117	11,504	9,360	10,991	9,561	8,255
122 U of VT & State Agr Coll	14,607	14,208	11,276	9,258	9,851	8,649	7,336	5,665
123 Univ of Maine Orono	14,559	11,686	10,293	9,165	10,731	9,968	8,663	11,141
124 The University of Alabama	14,547	11,853	9,460	8,223E	7,766	4,557	2,430I	2,304I
125 Oregon Hlth Sciences Univ	14,179	10,935	11,269	10,683	8,177	6,857	5,573	5,548
126 Dartmouth College	13,602	11,230	9,834	9,363	7,251I	5,139I	3,027	3,617
127 Drexel University	13,318	11,612	9,445	7,933	7,612	6,194	3,680	1,605
128 U of MD Center For EES	13,273	11,222	10,140	9,400	7,515	2,747	2,324	2,220
129 Boston University	13,196	9,955	9,587	8,893	7,768	5,878	4,996	4,515
130 Medical College of Wis	13,028	13,519	13,428	14,667	7,756	7,587	6,867I	6,148I
Total, 1st 130 insts.	5,985,916	5,351,490	4,663,448	4,262,699	3,739,624	3,229,180	2,844,371	2,573,330
131 N J Inst of Technology	12,494	10,320	7,242	9,571	7,639	3,213	1,391	1,151
132 Univ of Cal Santa Cruz	12,492	11,108	9,900	10,790	7,166	7,526	5,938	4,564
133 Med Univ of So Carolina	12,218	11,470	9,993	8,861	8,981	4,590	5,758	2,718
134 Brandeis University	12,062	11,516	8,023	6,954I	5,887I	4,820	2,179	5,499
135 Univ of Cal Santa Barbara	11,877	10,840	10,393	9,848	9,196	6,924	5,852	5,021
136 Univ of New Hampshire	11,539	9,126	8,747	6,932	7,150	8,096	7,014	6,408
137 University of Wyoming	10,624	9,506	9,293	8,615	9,342	8,623	8,035	8,528
138 Univ of Missouri Rolla	10,422	14,233	15,153	10,451	10,121	6,318	5,451	4,746
139 Michigan Tech University	9,992	9,976	8,095	7,899	8,417	7,748	6,729	6,444
140 Brown University	9,844	9,058	6,406	6,086	6,573	5,699	4,477	3,077
Total, 1st 140 insts.	6,099,480	5,458,643	4,756,693	4,348,706	3,820,096	3,292,537	2,898,195	2,618,486
141 Univ of Nevada - Reno	9,527	9,494	7,878	7,138	5,660I	4,180I	2,700E	7,969E
142 Wake Forest University	9,472	8,645	7,542	4,824	4,208I	3,594I	2,980I	2,366I
143 Memphis State University	9,407	7,593	6,554	5,864	4,407	3,422	1,309	861
144 Woods Hole Ocngrphic Inst	9,391	10,548	9,300	5,822	5,009	4,572	5,689	6,073
145 Univ of Wis-Milwaukee	8,924	7,981	7,762	7,140	6,740	5,857	4,994	4,468
146 Ohio University	8,842	7,739	7,323	5,720	5,198	3,516	2,911	2,836
147 U of Neb Med Ctr at Omaha	8,766	8,719	6,919	5,249	5,116	3,654	3,907	3,239
148 Tufts University	8,719	9,653	12,272	9,349	8,093I	6,833I	5,573I	4,313I
149 Thomas Jefferson Univ	8,518	8,094	7,465	6,287	5,095	4,740	5,681	9,512
150 Tenn Technological Univ	8,345	6,796	6,752	6,259	4,277I	2,295	1,024E	839E
Total, 1st 150 insts.	6,189,391	5,543,905	4,836,460	4,412,358	3,873,899	3,335,200	2,932,963	2,660,962

See explanatory information, if any, and SOURCE(S) at end of table.





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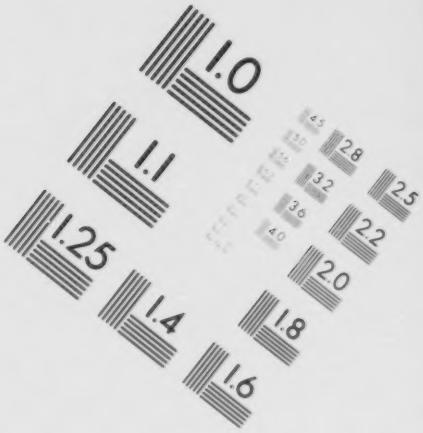

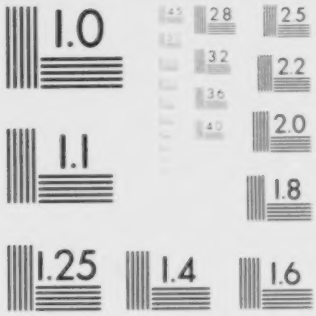

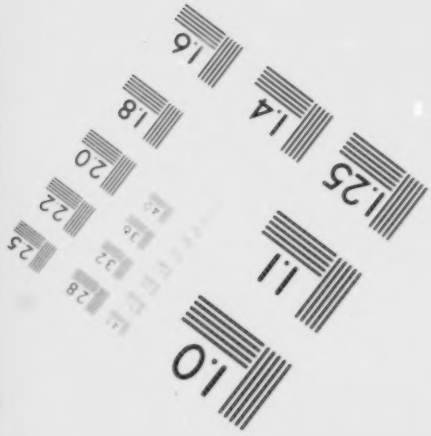

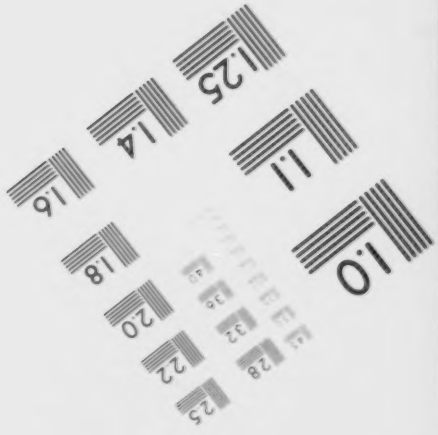

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Table B-34. Non-Federal R&D expenditures at universities and colleges: fiscal years 1983-90

[Dollars in thousands]

Institution ranking	Non-Federal							
	1990	1989	1988	1987	1986	1985	1984	1983
151 Vanderbilt University	8,315	9,067	15,945	12,246	10,446	9,471	8,111	6,433
152 SUNY Hlth Sci Ctr - Brkln	8,299	8,971	7,620	6,514	5,611I	4,708I	3,805	3,972
153 Univ Alabama Huntsville	8,210	8,185	6,630	3,610	2,842	2,018	1,490	1,165
154 Desert Research Institute	8,085	7,037	6,710	6,360	5,610	4,705	4,107	4,146
155 San Diego State Univ	7,877	7,076	6,682	5,587	3,927	2,818	1,521	1,722
156 Univ of North Texas	7,767	6,308	4,210	2,702	2,283	1,383	2,446	2,425
157 SUNY at Albany	7,537	9,069	6,030	5,796	4,771	3,788	3,834	3,024
158 Univ of Southwestern LA	7,445	5,999	4,229	4,428	4,177I	3,926	2,140I	355
159 University of Akron	7,367	7,203	4,915	5,405	3,536	2,246	1,801	1,054
160 University of Louisville	7,284	8,513	17,507	18,449	11,555	3,659	4,194	4,375
Total, 1st 160 insts.	6,267,577	5,621,333	4,916,938	4,483,455	3,928,657	3,373,922	2,966,412	2,689,633
161 University of Dayton	7,133	5,334	5,382	4,735	3,847	3,733	3,340	2,946
162 University of Mississippi	7,098	6,251	5,808	5,130	5,184	2,607	2,808	4,425E
163 SUNY at Binghamton	6,978	6,356	6,194	5,768	4,981	3,936	3,028	3,003
164 The Medical Col of Penna	6,939	9,028	6,257	5,632	3,486I	3,340I	3,194	1,006
165 University of Lowell	6,629	5,268	5,295	3,277	2,357	2,102	1,921	1,468
166 Creighton University	6,524	5,548	5,822	4,390I	2,958I	1,526	1,354	1,424
167 University of Notre Dame	6,506	6,176	4,266	4,010	3,597	3,477	2,766	1,616
168 Rice University	6,270	5,223	4,551	4,143I	3,735I	3,327	2,985I	2,643I
169 Brigham Young University	6,251	6,759	5,307	6,321	5,958I	5,595	4,892	2,781
170 University of Oregon	6,195	5,190	3,994	4,032	3,284	3,022	2,891	2,954
Total, 1st 170 insts.	6,334,100	5,682,466	4,969,814	4,528,893	3,968,044	3,406,587	2,995,591	2,713,899
171 Univ of Texas at Dallas	6,187	4,453	3,827	2,827	1,918	1,891	2,224	2,515
172 Loyola Univ - Chicago	6,057	5,252	3,880	3,319	3,072	2,488	2,103	1,982
173 North Dakota State Univ	6,051	5,141	4,428	16,638	15,567	14,825I	14,085I	13,345
174 Wright State University	6,025	5,329	4,539	3,565	5,435	5,307	4,302	3,051
175 South Dakota State Univ	5,845	5,218	5,279	5,257	4,616	5,794	3,415	3,302
176 Florida Inst of Tech	5,752	2,633	1,953	1,341	1,230	1,379	1,061	916
177 Northern Illinois Univ	5,679	4,356	3,545	3,002	3,172	2,992I	2,810I	2,628
178 Colorado School of Mines	5,633	4,929	3,835	3,369	3,089	2,508	2,398	1,699
179 George Washington Univ	5,555	5,064	3,634	4,178	3,348I	2,518	2,484	2,846
180 Univ of Missouri Kan City	5,543	5,535	6,145	3,978	3,167	2,071	1,439	1,145
Total, 1st 180 insts.	6,392,427	5,730,376	5,010,879	4,576,367	4,012,658	3,448,360	3,031,912	2,749,328
181 George Mason University	5,517	3,049	2,354	1,797E	1,281I	764I	247	217I
182 Hahnemann University	5,351	3,349	1,733	2,270	1,600	3,290	2,314	1,102
183 Georgia State University	5,321	4,493	3,503	3,152	1,739	995	1,144	1,088
184 U of Arkansas Med Sci Cam	5,244	5,576	4,005	3,533	3,040	2,098	1,400	1,457
185 Cleveland State Univ	5,004	4,810	5,287	4,878	2,880	2,290	1,297	1,100
186 Inst Paper Sci and Tech	4,796	4,849	4,733	4,308	4,341	4,063	4,023	4,644
187 Clarkson University	4,551	3,164	2,663	2,189	2,299	1,316	1,109	1,246
188 Union College (NY)	4,515	4,715	4,923	3,329I	1,735I	141	158	138
189 Howard University	4,315	4,979I	5,643I	6,307	6,047E	1,077	1,936	2,288
190 New York Medical College	4,216	2,937	2,720	1,756	1,241	1,098	1,175	1,586
Total, 1st 190 insts.	6,441,257	5,772,297	5,048,443	4,609,886	4,038,861	3,465,492	3,046,715	2,764,194
191 Loma Linda University	4,198	2,954	2,629	2,668	2,125I	1,583	1,262I	940I
192 Northeastern University	4,130	3,101	2,928	2,036	1,724	1,908	1,783I	1,658I
193 Medical Col of Georgi,	4,007	3,971	2,304	2,348	1,992	1,621	1,319	1,066
194 Univ of Tex at Arlington	3,934	5,658	5,415	4,093	3,995	2,230	1,482	1,237
195 Polytechnic University	3,894	4,521	2,817	2,671	2,008	1,620	1,642	1,163
196 Univ of South Alabama	3,868	3,537	3,305	2,953	2,708	2,825	1,971	1,410I
197 University of Montana	3,864	3,711	3,917E	3,760	3,141I	2,521E	2,365I	2,208
198 Alfred University	3,723	3,425	3,544	2,209	1,580	1,066	822	904
199 Old Dominion U Res Fdn	3,543	2,932	1,918	2,128	1,637I	1,145I	653	637E
200 University of Toledo	3,450	2,633	1,949	1,367I	785	785	857	420
Total, 1st 200 insts.	6,479,868	5,808,740	5,079,169	4,636,119	4,060,556	3,482,796	3,060,871	2,775,837
Total, all other sampled insts.	166,813	155,465	203,453	185,054	163,010	147,647	132,502	118,204
Estimated total non-sampled insts.	66,884	60,893	0	0	0	0	0	0

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-35. R&D expenditures at universities and colleges, by source of funds: fiscal year 1990

[Dollars in thousands]

Institution ranking	Total	Federal Govt.	State & local govts.	Industry	Institutional funds	Other
Total, all institutions	16,324,610	9,611,045	1,337,957	1,135,229	3,017,284	1,223,096
1 Johns Hopkins Univ	668,915	599,851	3,134	14,961	28,676	22,293
2 Mass Inst of Technology	311,767	233,813	5,489	43,460	7,109	21,896
3 University of Michigan	310,578	180,456	5,687	27,128	74,299	24,008
4 Univ of Wis-Madison	309,841	178,862	52,319	12,123	42,045	24,492
5 Stanford University	305,700[1]	251,446[1]	449[1]	15,774[1]	16,342[1]	21,689[1]
6 Cornell University	300,144	171,249	42,385	16,620	49,763	20,127
7 University of Minnesota	292,046	143,810	47,437	18,086	53,399	29,314
8 Texas A & M University	272,800	93,001	70,908	26,197	73,783	8,911
9 Pennsylvania State Univ	256,926	136,656	10,915	34,806	74,476	73
10 Univ of Cal Los Angeles	246,795	164,442	3,701	8,310	38,052	32,290
Total, 1st 10 insts.	3,275,512	2,153,586	236,424	217,465	457,944	210,093
11 University of Washington	245,313	203,353	4,313	22,215	12,020	3,412
12 Univ of Cal San Francisco	238,278	178,369	9,871	5,376	26,475	21,299
13 Univ of Cal San Diego	231,032	182,886	4,922	8,518	23,148	11,575
14 Univ of Cal Berkeley	231,061	131,717	9,945	10,995	66,764	12,656
15 Univ of Texas at Austin	228,203	109,593	13,980	3,907	80,699	20,044
16 Univ of Ill Urbana	227,742	117,170	28,582	20,762	53,391	7,637
17 Harvard University	220,812	154,090	1,146[1]	10,565[1]	16,766[1]	38,245[1]
18 Univ of Cal Davis	198,075	77,424	12,144	7,461	88,431	12,615
19 University of Arizona	195,633	92,920	6,111	10,246	75,373	10,983
20 Univ of Pennsylvania	189,390	133,747	3,635	11,973	12,579	27,456
Total, 1st 20 insts.	5,487,051	3,531,412	330,039	329,497	910,577	385,526
21 Columbia Univ Main Div	182,769	156,270	2,635	5,618	4,352	13,894
22 Yale University	180,706	144,962	934	7,014	11,464	16,332
23 Ohio State University	178,569	78,878	31,254	14,744	24,624	29,069
24 Univ of Southern Cal	169,102	123,714	2,389	18,896	24,103	0
25 Georgia Institute of Tech	168,193	94,842	1,229	21,256	50,866	0
26 Univ of MD College Park	166,022	66,410	48,026[1]	14,229[1]	37,357[1]	0[1]
27 University of Georgia	156,742	43,864	37,358	5,797	68,535	1,188
28 Baylor Col of Medicine	155,122	75,793	4,409	7,746	17,600	49,574
29 Univ. of Colorado	154,723	116,394	1,532	7,426	14,228	15,143
30 Washington University	151,249	105,759	3,109	14,132	14,324	13,925
Total, 1st 30 insts.	7,150,248	4,538,298	462,914	446,355	1,178,030	524,651
31 Duke University	140,708	106,053	1,391	12,252	9,757	11,255
32 University of Florida	139,678	64,614	11,687	12,237	43,372	7,768
33 Rutgers the St Univ of NJ	137,985	40,977	26,766	6,754	55,786	7,702
34 Louisiana State Univ	135,849	48,802	39,536	3,759	33,636	10,116
35 Northwestern University	131,979	61,812	1,081	5,325	49,949	13,812
36 N C State Univ at Raleigh	131,133	43,787	49,013	21,398	14,485	2,450
37 Purdue University	130,379	64,464	18,305	11,632	29,505	6,473
38 University of Rochester	129,011	105,644	6,165	6,419	1,801	8,982
39 Michigan State University	126,987	58,221	24,069	4,557	30,735	9,405
40 Univ. Of Tennessee System	126,790	58,648	23,222	7,449	29,657	7,814
Total, 1st 40 insts.	8,480,747	5,191,320	664,149	538,137	1,476,713	610,428
41 Univ of NC at Chapel Hill	123,113	92,468	13,465	2,179	14,988	13
42 VA Polytech Inst & St U	121,423	45,949	39,169	11,394	20,437	4,474
43 University of Chicago	117,955	96,327	194	1,202	10,210	10,022
44 University of Pittsburgh	117,716	90,700	1,229	6,481	7,216	12,090
45 Iowa St U of Sci & Tech	115,945	34,043	26,833	5,525	44,639	4,905
46 University of Iowa	115,778	79,046	2,335	6,827	22,569	4,801
47 University of Connecticut	113,349	43,477	4,010	6,388	51,409	8,065
48 Univ Alabama Birmingham	110,603	74,486	2,199	7,241	12,649	14,028
49 SUNY at Buffalo	109,190	66,876	4,164	2,118	19,823	16,209
50 New York University	108,511	80,756	786	5,260	9,118	12,591
Total, 1st 50 insts.	9,634,330	5,895,448	758,733	592,752	1,689,771	697,626

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-35. R&D expenditures at universities and colleges, by source of funds: fiscal year 1990

[Dollars in thousands]

Institution ranking	Total	Federal Govt.	State & local govts.	Industry	Institutional funds	Other
51 California Inst of Tech	105,730	90,577	510	2,268	7,492	4,883
52 Univ of Massachusetts	101,812	56,018	7,429	11,678	20,500	6,187
53 Carnegie-Mellon Univ	100,201	64,550	6,350	20,295	1,881	7,125
54 University of Virginia	96,815	58,801	6,960	6,406	13,215	11,433
55 University of Miami	94,344	68,146	2,110	5,366	4,555	14,169
56 Case Western Reserve Univ	93,384	70,515	1,546	4,954	6,348E	10,021
57 Princeton University	91,514	51,559	1,164	4,964	24,479	9,348
58 UT MD Anderson Cancer Ctr	91,283	28,889	0	0	41,501	20,893
59 Oregon State University	90,688	50,544	21,901	3,167	5,446	9,630
60 Indiana University	89,191	57,155	798	2,316	19,346	9,576
Total, 1st 60 insts.	10,589,292	6,492,200	807,501	654,166	1,834,534	800,891
61 University of Utah	89,018	62,297	4,139	3,443	13,974	5,165
62 Utah State University	86,450	58,965	11,550	5,089	12,508	1,338
63 UT SW Medical Ctr-Dallas	85,919	54,965	31	8,537	4,633	17,753
64 Univ of Ill Chicago	85,268	43,968	1,708	5,157	25,786	8,649
65 Univ of Missouri Columbia	84,311	24,422	13,398	9,130	32,468	4,893
66 Yeshiva University	83,968	65,066	0	0	9,603	9,299
67 Univ of MD Balt Prof Sch	83,689	38,841	16,815	12,791	9,072	6,170
68 Emory University	82,774	52,367	3,524	7,170	13,463	6,450
69 SUNY at Stony Brook	82,236	55,911	5,745	6,426	16,034	3,120
70 Univ of Cal Irvine	78,074	52,492	2,268	3,115	11,419	8,780
Total, 1st 70 insts.	11,430,999	7,001,494	863,479	708,024	1,985,494	872,508
71 Univ of Nebraska-Lincoln	77,598	22,686	27,124	3,394	22,624	1,770
72 Univ of Hawaii-Manoa	76,525	42,665	27,487	1,585	3,568	1,220
73 Univ of South Florida	76,404	30,481	4,153	4,250	35,356	2,164
74 Rockefeller University	75,245	36,788	268	4,918	16,805	16,466
75 Vanderbilt University	75,062	66,747	43	2,313	1,955	4,004
76 University of Kentucky	74,959	29,612	6,594	6,720	27,467	4,566
77 University of Cincinnati	74,461	44,966	2,978	4,468	13,114	8,935
78 Colorado State University	73,967	50,744	8,684	2,883	6,988	4,668
79 Boston University	73,655	60,459	171	4,611	0	8,414
80 Woods Hole Ocngrphic Inst	71,747	62,356	515	532	2,275	6,069
Total, 1st 80 insts.	12,180,622	7,448,998	941,496	743,698	2,115,646	930,784
81 New Mexico State Univ	71,288	54,688	8,250	7,293	884	173
82 Washington State Univ	66,856	26,884	5,161	2,523	25,408	6,880
83 Auburn University	66,795	14,529	21,911	2,541	19,557	3,157
84 Clemson University	66,664	14,221	16,424	7,595	26,262	2,162
85 Oklahoma State University	65,685	17,744	3,004	1,963	42,142	832
86 Univ of Alaska Fairbanks	65,571	31,896	2,205	4,100	23,636	3,734
87 Univ of Med & Dent of N J	64,229	33,185	8,231	2,908	14,263	5,642
88 CUNY Mt Sinai Sch of Med	63,752	43,607	971	4,053	5,327	9,794
89 Florida State University	62,933	32,927	2,396	669	24,940	2,001
90 Virginia Commonwlth Univ	62,730	41,606	2,390	4,835	11,778	2,121
Total, 1st 90 insts.	12,837,125	7,760,385	1,012,439	785,178	2,309,843	969,280
91 Wayne State University	62,455	28,488	5,306	5,875	17,715	5,071
92 University of Kansas	61,144	26,786	2,240	4,473	25,901	1,744
93 Univ of Cal Santa Barbara	59,750	47,873	1,169	2,655	5,617	2,436
94 Arizona State University	58,652	26,390	1,045	7,354	22,115	1,548
95 University of Oklahoma	58,645	16,871	3,983	2,562	27,498	7,731
96 Mississippi State Univ	58,492	21,426	20,684	6,389	5,298	4,695
97 University of New Mexico	57,728	35,449	4,900	4,022	13,607	9,750
98 Tulane University	56,407	28,331	1,865	5,955	15,785	4,474
99 Univ of Cal Riverside	54,892	15,806	2,374	905	32,636	3,173
100 Georgetown University	50,867	36,093	155	3,362	7,418	3,839
Total, 1st 100 insts.	13,416,157	8,034,098	1,056,160	828,725	2,483,433	1,013,741

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-35. R&D expenditures at universities and colleges, by source of funds: fiscal year 1990

[Dollars in thousands]

Institution ranking	Total	Federal Govt.	State & local govts.	Industry	Institutional funds	Other
101 Kans St U - Ag & App Sci	50,311	15,651	22,757	2,483	7,357	2,063
102 Temple University	49,449	26,164	778	2,707	14,241	5,559
103 Univ of South Carolina	47,477	20,587	960	3,072	18,787	4,071
104 Rensselaer Polytech Inst	47,363	22,809	3,255	11,418	4,267	5,614
105 Tufts University	47,009	38,290	115	7,761E	821E	22E
106 Brown University	46,763	36,919	317	3,307	3,801	2,419
107 U Tex Hlth Sci Ctr Houstn	45,707	29,017	1,066	5,142	4,185	6,297
108 U Tex Hlth Sci Ctr S Anto	45,663	29,431	2,241	6,166	4,901	2,924
109 West Virginia University	45,542	18,451	1,198	10,037	14,099	1,757
110 U of VT & State Agr Coll	45,162	30,555	2,389	3,473	6,544	2,201
Total, 1st 110 insts.	13,886,603	8,301,972	1,091,236	884,291	2,562,436	1,046,668
111 Dartmouth College	43,737	30,135	2,694	2,251	5,578E	3,079
112 Oregon Hlth Sciences Univ	41,420	27,241	0	1,325	7,671	5,183
113 U Tex Med Brnch Galveston	40,610	21,693	5,519	2,260	6,088	5,050
114 University of Delaware	40,119	17,588	3,139	4,397	11,751	3,244
115 Wake Forest University	39,654	30,182	143	5,642	1,490	2,197
116 U of Houston	37,978	17,575	9,706	1,529	6,202	2,966
117 Univ of Ark Fayetteville	36,963	10,831	11,686	2,947	10,307	1,192
118 University of Dayton	36,177	29,044	551	4,790	1,522	270
119 Unif Serv Univ of Hlth Sc	36,080	11,288	0	0	24,792	0
120 Univ of Rhode Island	35,846	20,511	4,802	1,071	9,411	51
Total, 1st 120 insts.	14,275,187	8,518,060	1,129,476	910,503	2,647,248	1,069,900
121 SUNY Hlth Sci Ctr - Syrcs	35,193	9,965	393	320	0	24,515
122 University of Idaho	34,936	13,812	7,831	3,731	9,513	49
123 Medical College of Wis	34,622	21,594	1,185	3,189	3,404	5,250
124 Texas Tech University	34,142	9,695	11,669	4,708	6,761	1,309
125 Syracuse University	33,811	18,924	1,626	3,851	6,273	3,137
126 George Washington Univ	32,372	26,817	165	988	1,490	2,912
127 Thomas Jefferson Univ	30,969	22,451	0	8,518	0	0
128 Brandeis University	30,881	18,819	467	0	4,725	6,870
129 Univ of Central Florida	30,618	9,354	5,485	3,813	11,966	0
130 Univ of P R-Mayaguez	30,555	14,337	7,336	293	6,736	1,853
Total, 1st 130 insts.	14,603,286	8,683,828	1,165,633	939,914	2,698,116	1,115,795
131 Univ Alabama Huntsville	29,565	21,355	972	2,529	4,709	0
132 Montana State University	27,648	9,052	7,153	3,833	7,610	0
133 Lehigh University	27,255	11,242	2,797	8,030	4,580	606
134 Univ of Cal Santa Cruz	26,347	13,855	828	825	9,076	1,763
135 University of Oregon	26,346	20,151	269	218	4,622	1,086
136 Rice University	26,267	19,997	1,211	3,616	0	1,443
137 Univ of New Hampshire	25,994	14,455	1,291	1,464	5,922	2,862
138 Southern Ill U-Carbondale	25,873	8,035	3,346	1,884	10,841	1,767
139 Univ of Maine Orono	23,605	9,046	908	4,663	8,253	735
140 Med Univ of So Carolina	23,128	10,910	0	2,264	5,810	4,144
Total, 1st 140 insts.	14,865,314	8,821,926	1,184,408	969,240	2,759,539	1,130,201
141 N Mex Inst Mining & Tech	22,911	5,610	1,626	10,194	4,908	573
142 SUNY Hlth Sci Ctr - Brkln	22,873	14,574	2,400	1,084	1,652	3,163
143 University of Wyoming	22,831	12,207	2,056	2,001	6,328	239
144 San Diego State Univ	22,524	14,647	1,536	1,994	3,706	641
145 University of Mississippi	22,071	14,973	33	1,250	4,012	1,803
146 SUNY at Albany	22,034	14,497	157	727	5,858	795
147 The University of Alabama	21,488	6,941	274	1,798	11,969	506
148 Univ of Nevada - Reno	21,449	11,922	702	1,227	6,357	1,241
149 Rush University	21,284	6,083	1,083	3,622	6,438	4,058
150 Drexel University	20,079	6,761	1,619	3,888	7,811	0
Total, 1st 150 insts.	15,084,858	8,930,141	1,195,894	997,025	2,818,578	1,143,220

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-35. R&D expenditures at universities and colleges, by source of funds: fiscal year 1990

[Dollars in thousands]

Institution ranking	Total	Federal Govt.	State & local govts.	Industry	Institutional funds	Other
151 University of Notre Dame	19,373	12,867	212	3,965	2,329	0
152 SUNY Col of Env Sci & For	18,671	1,973	622	1,867	13,587	622
153 The Medical Col of Penna	18,643	11,704	3,246	1,263	429	2,001
154 U of Neb Med Ctr at Omaha	17,844	9,078	511	1,595	4,819	1,841
155 University of N Dakota	17,498	14,398	133	1,556	1,022	389
156 US Naval Postgrad School	17,391	17,333	0	0	0	58
157 Howard University	17,382	13,067	117	2,869	1,313E	16
158 St Louis University	17,157	14,106	216	1,148	101	1,586
159 Desert Research Institute	16,852	8,767	1,716	3,329	2,844	196
160 Michigan Tech University	16,037	6,045	3,437	3,999	2,556	0
Total, 1st 160 insts.	15,261,706	9,039,479	1,206,104	1,018,616	2,847,578	1,149,929
161 University of Louisville	15,921	8,637	90	1,403	5,791	0
162 Florida A & M University	15,847	13,110	2,592	145	0	0
163 U of MD Center For EES	15,652	2,379	3,153	63	8,979	1,078
164 Univ of Wis-Milwaukee	15,639	6,715	5,581	430	1,907	1,006
165 N J Inst of Technology	15,225	2,731	8,422	1,710	586	1,776
166 Northeastern University	14,347	10,217	359	1,711	241	1,819
167 Univ of Missouri Rolla	14,285	3,863	835	2,186	6,141	1,260
168 Southern Methodist Univ	13,600E	11,000E	800E	300E	1,000E	500E
169 Hahnemann University	13,595	8,244	337	232	1,593E	3,189E
170 Wright State University	13,451	7,426	824	503	3,014	1,684
Total, 1st 170 insts.	15,409,268	9,113,801	1,229,097	1,027,299	2,876,830	1,162,241
171 New York Medical College	13,244	9,028	375	1,706	0	2,135
172 Ohio University	12,982	4,140	3,816	454	4,298	274
173 CUNY City College	12,973	10,554	716	442	0	1,261
174 North Dakota State Univ	12,468	6,417	928	1,289	2,997	837
175 Loyola Univ - Chicago	12,260	6,203	221	1,398	2,314	2,124
176 Univ of Texas at Dallas	12,075	5,888	1,266	740	2,799	1,382
177 Memphis State University	12,073	2,666	3,051	239	5,551	566
178 Medical Col of Georgia	12,052	8,045	207	1,920	841	1,039
179 U of Arkansas Med Sci Cam	11,898	6,654	140	1,117	2,144	1,843
180 Brigham Young University	11,608	5,357	1,360	1,845	2,755	291
Total, 1st 180 insts.	15,532,901	9,178,753	1,241,177	1,038,449	2,900,529	1,173,993
181 University of Lowell	11,291	4,662	1,204	3,892	187	1,346
182 Univ of South Alabama	11,105	7,237	396	1,553	1,919	0
183 Colorado School of Mines	10,943	5,310	1,217	4,060	356	0
184 Polytechnic University	10,919	7,025	1,201	2,278	265	150
185 SUNY at Binghamton	10,680	3,702	1,234	1,308	2,995	1,441
186 Old Dominion U Res Fdn	10,579	7,036	2,962	581	0	0
187 Eastern VA Medical School	10,496	7,782	64	0	0	2,650
188 University of Akron	10,372	3,005	1,733	3,873	1,761	0
189 University of Denver	10,102	7,476	200	1,623	803	0
190 San Jose State University	10,086	7,370	1,108	599	727	282
Total, 1st 190 insts.	15,639,474	9,239,358	1,252,496	1,058,216	2,909,542	1,179,862
191 Univ of North Texas	9,741	1,974	3,749	2,407	1,611	0
192 Tenn Technological Univ	9,631	1,286	4,377	945	1,663	1,360
193 College of William & Mary	9,572	6,460	1,629	138	1,145	200
194 South Dakota State Univ	9,511	3,666	4,785	282	550	228
195 Albany Med Ctr Grad Sch	9,431	6,073	0	719	1,131	1,508
196 Oregon Grad Inst Sci/Tech	9,262	6,837	52	1,591	765	17
197 Georgia State University	8,942	3,621	455	270	3,718	878
198 Northern Illinois Univ	8,930	3,251	422	2,351	2,906	0
199 Creighton University	8,929	2,405	225	6,084	215	0
200 Cleveland State Univ	8,699	3,695	2,022	206	2,667	109
Total, 1st 200 insts.	15,732,122	9,278,626	1,270,212	1,073,209	2,925,913	1,184,162
Total, all other sampled insts.	465,534	272,349	42,866	48,643	72,172	29,504
Estimated total non-sampled insts.	126,954	60,070	24,879	13,377	19,199	9,430

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

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Table B-36. R&D expenditures at public universities and colleges, by source of funds: fiscal year 1990

[Dollars in thousands]

Institution ranking	Total	Federal Govt.	State & local govts.	Industry	Institutional funds	Other
Total, all institutions	10,799,382	5,608,210	1,202,903	738,248	2,519,826	730,195
1 University of Michigan	310,578	180,456	2,687	27,128	74,299	26,008
2 Univ of Wis-Madison	309,841	178,862	52,319	12,123	42,045	24,492
3 University of Minnesota	292,046	143,810	47,437	18,086	53,399	29,314
4 Texas A & M University	272,800	93,001	70,908	26,197	73,783	8,911
5 Pennsylvania State Univ	256,926	136,656	10,915	34,806	74,476	73
6 Univ of Cal Los Angeles	246,795	164,442	3,701	8,310	38,052	32,290
7 University of Washington	245,313	203,353	4,313	22,215	12,020	3,412
8 Univ of Cal San Francisco	238,278	175,257	9,971	5,276	26,475	21,299
9 Univ of Cal San Diego	237,032	182,555	4,922	9,135	23,145	17,275
10 Univ of Cal Berkeley	231,061	131,717	9,032	10,892	66,764	12,656
Total, 1st 10 insts.	2,640,670	1,590,109	216,205	174,168	484,458	175,730
11 Univ of Texas at Austin	228,203	109,593	13,759	3,507	80,499	20,845
12 Univ of Ill Urbana	227,742	117,170	28,582	20,762	53,591	7,637
13 Univ of Cal Davis	198,075	77,424	12,144	7,461	88,421	12,625
14 University of Arizona	195,633	92,920	6,111	10,246	72,373	13,983
15 Ohio State University	178,569	78,878	31,254	14,744	24,624	29,069
16 Georgia Institute of Tech	169,193	94,842	1,229	21,256	50,866	0
17 Univ of MD College Park	166,022	66,410	48,026	14,229	37,357	01
18 University of Georgia	156,742	43,864	37,358	5,797	68,535	1,188
19 Univ. of Colorado	154,723	116,394	1,532	7,426	14,228	15,143
20 University of Florida	139,678	64,614	11,687	12,237	43,372	7,768
Total, 1st 20 insts.	4,454,250	2,452,218	407,887	291,833	1,018,324	283,988
21 Rutgers the St Univ of NJ	137,985	40,977	26,766	6,754	55,786	7,702
22 Louisiana State Univ	135,849	48,802	39,536	3,759	33,636	10,116
23 N C State Univ at Raleigh	131,133	43,787	49,013	21,398	14,485	2,450
24 Purdue University	130,379	64,464	18,305	11,632	29,505	6,473
25 Michigan State University	126,987	58,221	24,069	4,557	30,735	9,405
26 Univ. Of Tennessee System	126,790	58,648	23,222	7,449	29,657	7,814
27 Univ of NC at Chapel Hill	123,113	92,468	13,465	2,179	14,988	13
28 VA Polytech Inst & St U	121,423	45,949	39,169	11,394	20,437	4,474
29 University of Pittsburgh	117,716	90,700	1,229	6,481	7,216	12,090
30 Iowa St U of Sci & Tech	115,945	34,043	26,833	5,525	44,639	4,905
Total, 1st 30 insts.	5,721,570	3,030,277	669,494	372,961	1,299,408	349,430
31 University of Iowa	115,778	79,046	2,535	6,827	22,569	4,801
32 University of Connecticut	113,349	43,477	4,010	6,388	51,409	8,065
33 Univ Alabama Birmingham	110,603	74,486	2,199	7,241	12,649	14,028
34 SUNY at Buffalo	109,190	66,876	4,164	2,118	19,823	16,209
35 Univ of Massachusetts	101,812	56,018	7,429	11,678	20,500	6,187
36 University of Virginia	96,815	58,801	6,960	6,406	13,215	11,433
37 UT MD Anderson Cancer Ctr	91,283	28,889	0	0	41,501	20,893
38 Oregon State University	90,688	50,544	21,901	3,167	5,446	9,630
39 Indiana University	89,191	57,155	798	2,316	19,346	9,576
40 University of Utah	89,018	62,297	4,139	3,443	13,974	5,165
Total, 1st 40 insts.	6,729,297	3,607,866	723,629	422,545	1,519,840	455,417
41 Utah State University	86,450	58,965	11,550	2,089	12,508	1,338
42 UT SW Medical Ctr-Dallas	85,919	54,965	31	8,537	4,633	17,753
43 Univ of Ill Chicago	85,268	43,968	1,708	5,157	25,786	8,649
44 Univ of Missouri Columbia	84,311	24,422	13,398	9,130	32,468	4,893
45 Univ of MD Balt Prof Sch	83,689	38,841	16,815	12,791	9,072	6,170
46 SUNY at Stony Brook	82,236	55,911	5,745	5,426	18,034	3,120
47 Univ of Cal Irvine	78,074	52,492	2,268	3,115	11,419	8,780
48 Univ of Nebraska-Lincoln	77,598	22,686	27,124	3,394	22,624	1,770
49 Univ of Hawaii-Manoa	76,525	42,665	27,487	1,585	3,568	1,220
50 Univ of South Florida	76,404	30,481	4,153	4,250	35,356	2,164
Total, 1st 50 insts.	7,545,771	4,033,262	830,908	475,019	1,695,308	511,274

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-36. R&D expenditures at public universities and colleges, by source of funds: fiscal year 1990

[Dollars in thousands]

Institution ranking	Total	Federal Govt.	State & local govts.	Industry	Institutional funds	Other
51 University of Kentucky	74,959	29,612	6,594	6,720	27,467	4,566
52 University of Cincinnati	74,461	44,966	2,978	4,468	13,114	8,935
53 Colorado State University	73,967	50,744	8,684	2,883	6,988	4,668
54 New Mexico State Univ	71,288	54,688	8,250	5,293	884	173
55 Washington State Univ	66,856	26,884	5,161	2,523	25,408	6,880
56 Auburn University	66,795	14,629	21,911	3,541	19,557	5,157
57 Clemson University	66,664	14,221	16,424	7,595	26,262	2,162
58 Oklahoma State University	65,685	17,744	3,004	1,963	42,142	832
59 Univ of Alaska Fairbanks	65,571	31,896	2,205	4,100	23,636	3,734
60 Univ of Med & Dent of N J	64,229	33,185	8,231	2,908	14,263	5,642
Total, 1st 60 insts.	8,236,246	4,351,831	914,350	521,013	1,895,029	554,023
61 Florida State University	62,933	32,927	2,396	669	24,940	2,001
62 Virginia Commonwlth Univ	62,730	41,606	2,390	4,835	11,778	2,121
63 Wayne State University	62,455	28,488	5,306	5,875	17,715	5,071
64 University of Kansas	61,144	26,786	2,240	4,473	25,901	1,744
65 Univ of Cal Santa Barbara	59,750	47,873	1,169	2,655	5,617	2,436
66 Arizona State University	58,652	26,590	1,045	7,354	22,115	1,548
67 University of Oklahoma	58,645	16,871	3,983	2,562	27,498	7,731
68 Mississippi State Univ	58,492	21,426	20,684	6,389	5,298	4,695
69 University of New Mexico	57,728	25,449	4,900	4,022	13,607	9,750
70 Univ of Cal Riverside	54,892	15,806	2,374	903	32,636	3,173
Total, 1st 70 insts.	8,833,667	4,635,653	960,837	560,750	2,082,134	594,293
71 Kans St U - Ag & App Sci	50,311	15,651	22,757	2,483	7,357	2,063
72 Temple University	49,449	26,164	778	2,707	14,241	5,559
73 Univ of South Carolina	47,477	20,587	960	3,072	18,787	4,071
74 U Tex Hlth Sci Ctr Houstn	45,707	29,017	1,066	5,142	4,185	6,297
75 U Tex Hlth Sci Ctr S Anto	45,663	29,431	2,241	6,166	4,901	2,924
76 West Virginia University	45,542	18,451	1,198	10,037	14,099	1,757
77 U of VT & State Agr Coll	45,162	30,555	2,389	3,473	6,544	2,201
78 Oregon Hlth Sciences Univ	41,420	27,241	0	1,325	7,671	5,183
79 U Tex Med Brnch Galveston	40,610	21,693	5,519	2,260	6,088	5,050
80 University of Delaware	40,119	17,588	3,139	4,397	11,751	3,244
Total, 1st 80 insts.	9,285,127	4,872,031	1,000,884	601,812	2,177,758	632,642
81 U of Houston	37,978	17,575	9,706	1,529	6,202	2,966
82 Univ of Ark Fayetteville	36,963	10,831	11,686	2,947	10,307	1,192
83 Unif Serv Univ of Hlth Sc	36,080	11,288	0	0	24,792	0
84 Univ of Rhode Island	35,846	20,511	4,802	1,071	9,411	51
85 SUNY Hlth Sci Ctr - Syrcs	35,193	9,965	393	320	0	24,515
86 University of Idaho	34,936	13,812	7,831	3,731	9,513	49
87 Texas Tech University	34,142	9,695	11,669	4,708	6,761	1,309
88 Univ of Central Florida	30,618	9,354	5,485	3,813	11,966	0
89 Univ of P R-Mayaguez	30,555	14,337	7,336	293	6,736	1,853
90 Univ Alabama Huntsville	29,565	21,355	972	2,529	4,709	0
Total, 1st 90 insts.	9,627,003	5,010,754	1,060,764	622,753	2,268,155	664,577
91 Montana State University	27,648	9,052	7,153	3,833	7,610	0
92 Univ of Cal Santa Cruz	26,347	13,855	828	825	9,076	1,763
93 University of Oregon	26,346	20,151	269	218	4,622	1,086
94 Univ of New Hampshire	25,994	14,455	1,291	1,464	5,922	2,862
95 Southern Ill U-Carbondale	25,873	8,035	3,346	1,884	10,841	1,767
96 Univ of Maine Orono	23,605	9,046	908	4,663	8,253	735
97 Med Univ of So Carolina	23,128	10,910	0	2,264	5,810	4,144
98 N Mex Inst Mining & Tech	22,911	5,610	1,626	10,194	4,908	573
99 SUNY Hlth Sci Ctr - Brkln	22,873	14,574	2,400	1,084	1,652	3,163
100 University of Wyoming	22,831	12,207	2,056	2,001	6,328	239
Total, 1st 100 insts.	9,874,559	5,128,649	1,080,641	651,183	2,333,177	680,909

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-36. R&D expenditures at public universities and colleges, by source of funds: fiscal year 1990

[Dollars in thousands]

Institution ranking	Total	Federal Govt.	State & local govts.	Industry	Institutional funds	Other
101 San Diego State Univ	22,524	14,647	1,536	1,994	3,706	641
102 University of Mississippi	22,071	14,973	33	1,250	4,012	1,803
103 SUNY at Albany	22,034	14,497	157	727	5,858	795
104 The University of Alabama	21,488	6,941	274	1,798	11,969	506
105 Univ of Nevada - Reno	21,449	11,922	702	1,227	6,357	1,241
106 SUNY Col of Env Sci & For	18,671	1,973	622	1,867	13,587	622
107 U of Neb Med Ctr at Omaha	17,844	9,078	511	1,595	4,819	1,841
108 University of N Dakota	17,498	14,398	133	1,556	1,022	389
109 US Naval Postgrad School	17,391	17,333	0	0	0	58
110 Desert Research Institute	16,852	8,767	1,716	3,329	2,844	196
Total, 1st 110 insts.	10,072,381	5,243,178	1,086,325	666,526	2,387,351	689,001
111 Michigan Tech University	16,037	6,045	3,437	3,999	2,556	0
112 University of Louisville	15,921	8,637	90	1,403	5,791	0
113 Florida A & M University	15,847	13,110	2,592	145	0	0
114 U of MD Center For EES	15,652	2,379	3,153	63	8,979	1,078
115 Univ of Wis-Milwaukee	15,639	6,715	5,581	430	1,907	1,006
116 N J Inst of Technology	15,225	2,731	8,422	1,710	586	1,776
117 Univ of Missouri Rolla	14,285	3,863	835	2,186	6,141	1,260
118 Wright State University	13,451	7,426	824	503	3,014	1,684
119 Ohio University	12,982	4,140	3,816	454	4,298	274
120 CUNY City College	12,973	10,554	716	442	0	1,261
Total, 1st 120 insts.	10,220,393	5,308,778	1,115,791	677,861	2,420,623	697,340
121 North Dakota State Univ	12,468	6,417	928	1,289	2,997	837
122 Univ of Texas at Dallas	12,075	5,888	1,266	740	2,799	1,382
123 Memphis State University	12,073	2,666	3,051	239	5,551	566
124 Medical Col of Georgia	12,052	8,045	207	1,920	841	1,039
125 U of Arkansas Med Sci Cam	11,898	6,654	140	1,117	2,144	1,843
126 University of Lowell	11,291	4,662	1,204	3,892	187	1,346
127 Univ of South Alabama	11,105	7,237	396	1,553	1,919	0
128 Colorado School of Mines	10,943	5,310	1,217	4,060	356	0
129 SUNY at Binghamton	10,680	3,702	1,234	1,308	2,995	1,441
130 Old Dominion U Res Fdn	10,579	7,036	2,962	581	0	0
Total, 1st 130 insts.	10,335,557	5,366,395	1,128,396	694,560	2,440,412	705,794
131 University of Akron	10,372	3,005	1,733	3,873	1,761	0
132 San Jose State University	10,086	7,370	1,108	599	727	282
133 Univ of North Texas	9,741	1,974	3,749	2,407	1,611	0
134 Tenn Technological Univ	9,631	1,286	4,377	945	1,663	1,360
135 College of William & Mary	9,572	6,460	1,629	138	1,145	200
136 South Dakota State Univ	9,511	3,666	4,785	282	550	228
137 Georgia State University	8,942	3,621	455	270	3,718	878
138 Northern Illinois Univ	8,930	3,251	422	2,351	2,906	0
139 Cleveland State Univ	8,699	3,695	2,022	206	2,667	109
140 NC Ag & Tech State Univ	8,657	7,503	538	0	0	616
Total, 1st 140 insts.	10,429,698	5,408,226	1,149,214	705,631	2,457,160	709,467
141 Univ of Southwestern LA	8,319	874	1,488	0	5,129	828
142 Univ of Missouri Kan City	8,310	2,767	771	1,383	3,117	272
143 George Mason University	8,011	3,494	1,529	742	0	3,246
144 University of Montana	7,332	3,468	732	433	2,537	162
145 Kent State University	7,172	4,656	265	195	1,935	121
146 Med Col of Ohio at Toledo	7,159	5,956	336	468	0	399
147 Alabama A & M University	7,010	5,560	0	0	1,450	0
148 CUNY Hunter College	6,928	4,531	0	360	1,489	548
149 Univ of Texas at El Paso	6,889	5,451	946	339	153	0
150 Univ of P R-Med Sci Cmpus	6,293	5,366	0	0	868	59
Total, 1st 150 insts.	10,503,121	5,449,349	1,155,281	709,551	2,473,838	715,102
Total, all other sampled insts.	199,314	114,988	25,299	18,653	30,590	9,784
Estimated total non-sampled insts.	96,947	43,873	22,323	10,044	15,398	5,309

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-37. R&D expenditures at private universities and colleges, by source of funds: fiscal year 1990

[Dollars in thousands]

Institution ranking	Total	Federal Govt.	State & local govts.	Industry	Institutional funds	Other
Total, all institutions	5,525,227	4,002,834	135,053	396,982	497,458	492,900
1 Johns Hopkins Univ	668,915	599,851	3,134	14,961	28,676	22,293
2 Mass Inst of Technology	311,767	233,813	2,489	43,460	7,109	24,896
3 Stanford University	305,700I	251,446I	449I	15,774I	16,342I	21,689I
4 Cornell University	300,144	171,249	42,385	16,620	49,763	20,127
5 Harvard University	220,812	154,090	1,146I	10,565I	16,766I	38,245I
6 Univ of Pennsylvania	189,390	133,747	3,635	11,973	12,579	27,456
7 Columbia Univ Main Div	182,769	156,270	2,635	5,618	4,352	13,894
8 Yale University	180,706	144,962	934	7,014	11,464	16,332
9 Univ of Southern Cal	169,102	123,714	2,389	18,896	24,103	0
10 Baylor Col of Medicine	155,122	75,793	4,409	7,746	17,600	49,574
Total, 1st 10 insts.	2,684,427	2,044,935	63,605	152,627	188,754	234,506
11 Washington University	151,249	105,759	3,109	14,132	14,324	13,925
12 Duke University	140,708	106,053	1,391	12,252	9,757	11,255
13 Northwestern University	131,979	61,812	1,081	5,325	49,949	13,812
14 University of Rochester	129,011	105,644	6,165	6,419	1,801	8,982
15 University of Chicago	117,955	96,327	194	1,202	10,210	10,022
16 New York University	108,511	80,756	786	5,260	9,118	12,591
17 California Inst of Tech	105,730	90,577	510	2,268	7,492	4,883
18 Carnegie-Mellon Univ	100,201	64,550	6,350	20,295	1,881	7,125
19 University of Miami	94,344	68,144	2,110	5,366	4,555	14,169
20 Case Western Reserve Univ	93,384	70,515	1,546	4,954	6,348E	10,021
Total, 1st 20 insts.	3,857,499	2,895,072	86,847	230,100	304,189	341,291
21 Princeton University	91,514	51,559	1,164	4,964	24,479	9,348
22 Yeshiva University	83,968	65,066	0	0	9,603	9,299
23 Emory University	82,774	52,367	3,324	7,170	13,463	6,450
24 Rockefeller University	75,245	36,788	268	4,918	16,805	16,466
25 Vanderbilt University	75,062	66,747	43	2,313	1,955	4,004
26 Boston University	73,655	60,459	171	4,611	0	8,414
27 Woods Hole Ocngrphic Inst	71,747	62,356	515	532	2,275	6,069
28 CUNY Mt Sinai Sch of Med	63,752	43,607	971	4,053	5,327	9,794
29 Tulane University	56,407	28,331	1,865	5,952	15,785	4,474
30 Georgetown University	50,867	36,093	155	3,362	7,418	3,839
Total, 1st 30 insts.	4,582,490	3,398,445	95,323	267,975	401,299	419,448
31 Rensselaer Polytech Inst	47,363	22,809	3,255	11,418	4,267	5,614
32 Tufts University	47,009	38,290	115	7,761E	821E	22E
33 Brown University	46,763	36,919	317	3,307	3,801	2,419
34 Dartmouth College	43,737	30,135	2,694	2,251	5,578E	3,079
35 Wake Forest University	39,654	30,182	143	5,642	1,490	2,197
36 University of Dayton	36,177	29,044	551	4,790	1,522	270
37 Medical College of Wis	34,622	21,594	1,185	3,189	3,404	5,250
38 Syracuse University	33,811	18,924	1,626	3,851	6,273	3,137
39 George Washington Univ	32,372	26,817	165	988	1,490	2,912
40 Thomas Jefferson Univ	30,969	22,451	0	8,518	0	0
Total, 1st 40 insts.	4,974,967	3,675,610	105,374	319,690	429,945	444,348
41 Brandeis University	30,881	18,819	467	0	4,725	6,870
42 Lehigh University	27,255	11,242	2,797	8,030	4,580	606
43 Rice University	26,267	19,997	1,211	3,616	0	1,443
44 Rush University	21,284	6,083	1,083	3,622	6,438	4,058
45 Drexel University	20,079	6,761	1,619	3,888	7,811	0
46 University of Notre Dame	19,373	12,867	212	3,965	2,329	0
47 The Medical Col of Penna	18,643	11,704	3,246	1,263	429	2,001
48 Howard University	17,382	13,067	117	2,869	1,313E	16
49 St Louis University	17,157	14,106	216	1,148	101	1,586
50 Northeastern University	14,347	10,217	359	1,711	241	1,819
Total, 1st 50 insts.	5,187,635	3,800,473	116,701	349,802	457,912	462,747

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-37. R&D expenditures at private universities and colleges, by source of funds: fiscal year 1990

[Dollars in thousands]

Institution ranking	Total	Federal Govt.	State & local govts.	Industry	Institutional funds	Other
51 Southern Methodist Univ	13,600E	11,000E	800E	300E	1,000E	500E
52 Hahnemann University	13,595	8,244	337	232	1,593E	3,189E
53 New York Medical College	13,244	9,028	375	1,706	0	2,135
54 Loyola Univ - Chicago	12,260	6,203	221	1,398	2,314	2,124
55 Brigham Young University	11,608	5,357	1,360	1,845	2,755	291
56 Polytechnic University	10,919	7,025	1,201	2,278	265	150
57 Eastern VA Medical School	10,496	7,782	64	0	0	2,650
58 University of Denver	10,102	7,476	200	1,623	803	0
59 Albany Med Ctr Grad Sch	9,431	6,073	0	719	1,131	1,508
60 Oregon Grad Inst Sci/Tech	9,262	6,837	52	1,591	765	17
Total, 1st 60 insts.	5,302,152	3,875,498	121,311	361,494	468,538	475,311
61 Creighton University	8,929	2,405	225	6,084	215	0
62 Clarkson University	8,392	3,841	1,239	1,638	1,674	0
63 Boston College	8,052	6,798	1	210	371	672
64 Loma Linda University	7,547	3,349	0	3,266	742	190
65 Catholic Univ of America	7,398	6,783	0	615	0	0
66 Florida Inst of Tech	7,003	1,251	3,067	1,205	1,243	237
67 Illinois Inst of Tech	6,793	3,887	174	1,819	913	0
68 Meharry Medical College	6,663	6,391	0	38	185	49
69 Stevens Institute of Tech	6,146	2,960	982	960	1,194	50
70 Morehouse School of Med	5,891	5,149	0	50	192	500
Total, 1st 70 insts.	5,374,966	3,918,312	126,999	377,379	475,267	477,009
71 Inst Paper Sci and Tech	5,761	965	0	172	3,936	688
72 Union College (NY)	5,459	944	444	375	0	3,696
73 Tuskegee University	5,089	4,783	0	110	129	67
74 U Hlth Sci/Chcgo Med Sch	4,695	3,547	0	267	484	397
75 Worcester Poly Institute	4,683	2,365	185	1,632	288	213
76 Mercer University	4,656	3,590	65	355	646	0
77 University of Tulsa	4,325	1,037	414	2,330	420	124
78 American University	4,127	3,532	28	183	318	66
79 Alfred University	4,067	344	1,090	1,672	917	44
80 Wesleyan University	4,021	1,949	318	0	1,471	283
Total, 1st 80 insts.	5,421,849	3,941,368	129,543	384,475	483,876	482,587
81 Marquette University	3,262	1,855	0	1,239	168	0
82 Fairleigh Dickinson Univ	3,183	2,364	713	19	14	73
83 Chas R Drew U of Med & Sc	3,098I	3,098I	0I	0I	0I	0I
84 New York Inst Technology	3,087	0	0	475	2,612	0
85 Texas Col of Osteo Med	2,767	2,031	186	295	0	255
86 Fordham University	2,501	1,723	348	0	105	325
87 Hampton University	2,307	2,307	0	0	0	0
88 Institute of Textile Tech	1,921	0	0	1,869	52	0
89 Xavier University of LA	1,902	1,902	0	0	0	0
90 Bryn Mawr College	1,854	1,252	128	0	469	5
Total, 1st 90 insts.	5,447,731	3,957,900	130,918	388,372	487,296	483,245
91 Texas Christian Univ	1,823	1,362	0	399	62	0
92 Amherst College	1,792	1,233	0	145	414	0
93 Occidental College	1,627	300	696	208	148	275
94 Nova University	1,601	1,341	144	116	0	0
95 Santa Clara University	1,569	550	0	82	835	102
96 University of Detroit	1,526	245	0	1,244	37	0
97 Seton Hall University	1,515I	1,302I	0I	213I	0I	0I
98 Wentworth Inst of Tech	1,435	1,435	0	0	0	0
99 Smith College	1,398	298	0	0	361	739
100 Villanova University	1,390	943	118	100	229	0
Total, 1st 100 insts.	5,463,407	3,966,909	131,876	390,879	489,382	484,361
Total, all other sampled insts.	31,814	19,729	622	2,769	4,275	4,419
Estimated total non-sampled insts.	30,006	16,196	2,555	3,334	3,801	4,120

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-38. Industry-sponsored R&D expenditures at universities and colleges: fiscal years 1983-90

[Dollars in thousands]

Institution ranking	1990	1989	1988	1987	1986	1985	1984	1983
Total, all institutions	1,135,229	997,989	870,844	789,238	699,157	559,224	474,750	388,105
1 Mass Inst of Technology	43,460	39,650	33,256	35,064	34,764	32,007	26,458	17,944
2 Pennsylvania State Univ	34,806	30,256	24,068	20,114	16,905	15,715	12,995	12,445
3 University of Michigan	27,128	22,023	14,782	14,451	12,481	11,677	7,559	5,984
4 Texas A & M University	26,197	21,204	18,534	13,398	7,944	11,731	5,601	6,483
5 University of Washington	22,215	19,135	16,580	18,564	16,493	8,887	6,801	6,176
6 N C State Univ at Raleigh	21,398	21,735	18,580	11,748	10,452	8,249	3,026	3,246
7 Georgia Institute of Tech	21,256	21,346	21,567	23,628	21,944	18,730	18,131	13,255
8 Univ of Ill Urbana	20,762	15,785	13,686	11,414	8,831	7,506	4,922	3,448
9 Carnegie-Mellon Univ	20,295	18,976	17,092	16,130	17,591	11,780	12,603	7,922
10 Univ of Southern Cal	18,896	14,716	11,805	9,999	6,376	5,361	4,800	2,012
Total, 1st 10 insts.	256,413	224,826	189,950	174,510	153,781	131,643	102,896	78,915
11 University of Minnesota	18,086	12,389	10,670	11,056	11,157	8,135	8,053	5,962
12 Cornell University	16,620	16,627	15,806	17,169	14,256	12,526	13,229	9,206
13 Stanford University	15,774I	13,764	11,628	10,979	8,833	8,044	9,043	6,430
14 Johns Hopkins Univ	14,961	11,013	9,247	7,755	3,538	3,076	2,500E	2,000E
15 Ohio State University	14,744	20,244	10,910	9,278	7,826	7,140	6,559	6,431
16 Univ of MD College Park	14,229I	12,940I	11,451I	10,149E	8,124E	7,374E	7,174E	6,963E
17 Washington University	14,132	13,500	12,839	12,016	11,352	9,617	8,339	5,601
18 Univ of MD Balt Prof Sch	12,791	11,183	8,017	7,652	6,827	4,414I	3,402I	2,386I
19 Duke University	12,252	12,551	12,379	8,085	7,300	5,193	4,622	3,166
20 University of Florida	12,237	10,579	8,529	9,404	7,902	8,254	5,000	4,345
Total, 1st 20 insts.	402,239	359,616	301,426	278,053	240,896	205,416	170,817	131,405
21 Univ of Wis-Madison	12,123	11,035	9,556	8,586	8,007	7,217	5,451	4,502
22 Univ of Pennsylvania	11,973	9,582	6,230	7,483	7,299	3,685	3,013	1,821
23 Univ of Massachusetts	11,678	11,480	9,470	8,560	7,427	5,752	4,729	3,681
24 Purdue University	11,632	11,451	10,325	9,579	8,776	9,583	9,232	9,269
25 Rensselaer Polytech Inst	11,418	9,066	9,014	8,006	5,813I	5,262	4,785	3,589
26 VA Polytech Inst & St U	11,394	9,825	9,058	7,010	6,463	5,924	5,818	5,988
27 Univ of Cal Berkeley 1/	10,892	8,480	8,267	6,580	6,143	0	0	0
28 Harvard University	10,565I	10,461I	9,093I	7,778E	6,723I	5,410E	4,883E	4,695E
29 University of Arizona	10,246	9,729	12,245	11,638	11,158	9,402	7,837	7,956
30 N Mex Inst Mining & Tech	10,194	7,695	6,853	5,418	3,335	2,538I	1,739	1,262I
Total, 1st 30 insts.	514,354	458,420	391,537	358,691	312,040	260,189	218,304	174,169
31 West Virginia University	10,037	3,953	754	862	899	588	673	594
32 Univ of Cal San Diego 1/	9,135	6,824	5,055	5,902	5,995	0	0	0
33 Univ of Missouri Columbia	9,130	6,434	4,252	4,206	4,562	3,402	2,128	1,492
34 UT SW Medical Ctr-Dallas	8,537	6,938	5,915	5,566	4,295	3,967	3,620	2,792
35 Thomas Jefferson Univ	8,518	8,094	7,465	6,287	5,095	4,740	3,681	4,290
36 Univ of Cal Los Angeles 1/	8,310	7,548	8,492	14,360	12,659	0	0	0
37 Lehigh University	8,030	7,596	7,479	6,731	5,514	4,286	1,865	1,488
38 Tufts University	7,761E	8,010E	8,375	6,314E	982I	828I	676I	524I
39 Baylor Col of Medicine	7,746	7,263	5,329	4,879	3,772	4,241	3,932	4,726
40 Clemson University	7,595	3,849	3,791	3,105	2,963	1,800	2,009	2,223
Total, 1st 40 insts.	599,153	524,929	448,444	416,903	358,776	284,041	236,888	192,297
41 Univ of Cal Davis 1/	7,461	8,039	6,975	5,324	4,510	0	0	0
42 Univ. Of Tennessee System	7,449	6,636	6,312	4,870	3,755	3,521	2,835	2,447
43 Univ. of Colorado	7,426	6,728	5,234	4,502	3,567	2,234	1,809	1,542
44 Arizona State University	7,354	2,382	2,832	5,575	3,061	2,441	1,588	1,373
45 New Mexico State Univ	7,293	6,242	7,844	9,847	6,985	6,237E	5,121E	0
46 Univ Alabama Birmingham	7,241	6,602	6,153	4,544	4,508	3,705	3,117	2,265
47 Emory University	7,170	6,169	4,701	3,350	2,427	2,395	2,395	1,957
48 Yale University	7,014	6,563	5,649	5,563	1,790	1,729	1,637	1,316
49 University of Iowa	6,827	10,301	5,527	2,615	1,706	1,556	1,788	1,490
50 Rutgers the St Univ of NJ	6,754	6,087	4,498	3,087	2,594	2,108	1,817	1,694
Total, 1st 50 insts.	671,142	590,678	504,169	466,180	393,679	309,967	258,995	206,381

See explanatory information, if any, and SOURCE(S) at end of table.

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Table B-38. Industry-sponsored R&D expenditures at universities and colleges: fiscal years 1983-90

(Dollars in thousands)

Institution ranking	1990	1989	1988	1987	1986	1985	1984	1983
51 University of Kentucky	6,720	5,819	4,191	6,312	8,173	4,768	4,378	3,007
52 University of Pittsburgh	6,481	9,406	8,738	6,547	5,428	4,069	2,813	2,919
53 University of Rochester	6,419	4,913	4,705	6,267	6,714	6,896	7,134	6,481
54 University of Virginia	6,406	5,768	4,733	3,260	2,941	2,347	2,399	2,342
55 Mississippi State Univ	6,389	3,886	3,430	2,823	2,081	1,606	1,250	1,229
56 University of Connecticut	6,388	4,996	4,310	3,729	4,090	4,572	3,537	1,743
57 U Tex Hlth Sci Ctr S Anto	6,166	5,535	4,908	4,404	4,302	3,458	2,497	2,237
58 Creighton University	6,084	2,229	5,589	4,143I	2,793I	1,345	1,105	886
59 Tulane University	5,952	5,577	5,418	4,945	4,689	4,072	3,372	2,410
60 Wayne State University	5,875	3,850	2,897	2,761	1,717	1,241	884	894
Total, 1st 60 insts.	734,022	645,657	553,088	511,371	436,607	344,341	288,364	230,529
61 University of Georgia	5,797	4,877	5,659	4,982	4,360	3,729	4,356	4,486
62 Wake Forest University	5,642	4,859	4,183	2,402	1,768I	1,509I	1,254I	993I
63 Columbia Univ Main Div	5,618	5,408	4,841	3,915	4,086	4,027	349	336
64 Auburn University	5,541	4,111	2,615	3,112	2,805	2,699	2,604	1,904
65 Iowa St U of Sci & Tech	5,525	4,408	3,961	3,597	3,043	3,131	2,925	2,957
66 University of Miami	5,366	4,702	4,907	7,300	8,897	7,892	5,600	4,384
67 Northwestern University	5,325	5,289	3,532	3,101	2,256	1,690	1,088	1,365
68 Univ of Cal San Fran 1/	5,276	6,226	5,129	4,008	4,119	0	0	0
69 New York University	5,260	4,066	3,677	3,036	4,292	3,742	3,240	2,649
70 Univ of Ill Chicago	5,157	5,333	2,664	1,728	1,490	909	731	1,022
Total, 1st 70 insts.	788,529	694,936	594,254	548,552	473,723	373,669	310,511	250,625
71 U Tex Hlth Sci Ctr Houstn	5,142	3,266	3,385	3,494	3,661	1,217	883	707
72 Princeton University	4,964	5,640	4,487	4,122	2,989	1,184	958	805
73 Case Western Reserve Univ	4,954	4,915	3,975	3,433	2,992	2,408	1,802	1,720
74 Rockefeller University	4,918	3,453	3,764	3,476	3,321	2,861	2,817	2,661
75 Virginia Commonwlth Univ	4,835	3,910	3,283	3,192	2,195	2,019	1,412	350E
76 University of Dayton	4,790	4,164	4,013	3,335	2,786	2,556	2,226	2,108
77 Texas Tech University	4,708	4,697	4,513	4,123	4,213	3,650	2,663I	1,910
78 Univ of Maine Orono	4,663	4,002	2,823	2,051	2,856	1,559	2,320	1,404
79 Boston University	4,611	2,555	2,379	2,276	2,076	1,994	906	812
80 Michigan State University	4,557	4,068	3,615	3,137	2,969	2,686	2,446	619
Total, 1st 80 insts.	836,671	733,606	630,491	581,191	503,781	395,803	328,944	263,721
81 University of Kansas	4,473	2,809	2,934	3,259	2,527	1,426I	1,109I	795I
82 University of Cincinnati	4,468	4,160	3,449	3,299	1,655	1,880	1,388	1,262
83 University of Delaware	4,397	4,073	3,558	3,659	3,551	2,809	2,752	3,075
84 Univ of South Florida	4,250	327	144	117	84	75	192	145
85 Univ of Alaska Fairbanks	4,100	3,039	2,672E	3,024I	2,936I	2,878I	2,819I	3,143
86 Colorado School of Mines	4,060	3,793	2,647	1,995	2,516	2,160	2,356	1,609
87 CUNY Mt Sinai Sch of Med	4,053	3,732	2,982	2,870	950	1,426	1,795	1,145
88 University of New Mexico	4,022	3,496	1,140	4,858	4,450	3,875	3,523	3,084I
89 Michigan Tech University	3,999	3,584	2,901	2,740	2,490	2,511	1,901	1,453
90 University of Notre Dame	3,965	4,204	3,114	2,824	2,743	2,502	1,874	1,237
Total, 1st 90 insts.	878,458	765,823	656,032	608,836	527,683	417,345	348,653	280,669
91 University of Lowell	3,892	2,849	2,626	1,201	816	1,059	1,519	1,360
92 Drexel University	3,888	4,202	5,928	2,468	2,940	2,237	1,562	611
93 University of Akron	3,873	2,591	2,422	2,426	2,256	1,056	846	322
94 Syracuse University	3,851	3,937	2,595	3,975	7,397	2,298	1,120	943
95 Montana State University	3,833	2,902	2,770	2,454I	2,138	1,628	1,818	1,054
96 Univ of Central Florida	3,813	2,580	1,864	1,990I	1,940I	1,514	1,273I	1,032
97 Louisiana State Univ	3,759	2,120	2,348	1,481	998	1,372	3,247	2,503
98 University of Idaho	3,731	3,788	3,339	2,630	2,670	2,793	2,567	2,260
99 Rush University	3,622	3,714	2,139	1,320	1,447	738	682	753
100 Rice University	3,616	3,232	1,195	1,182I	1,066I	1,054	773I	683I
Total, 1st 100 insts.	916,336	797,738	680,258	629,963	551,351	433,094	364,060	292,190

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-38. Industry-sponsored R&D expenditures at universities and colleges: fiscal years 1983-90

[Dollars in thousands]

Institution ranking	1990	1989	1988	1987	1986	1985	1984	1983
101 Univ of Texas at Austin	3,507	2,694	3,175	3,161	2,677	2,136	1,932	1,750
102 U of VT & State Agr Coll	3,473	3,486	3,139	2,877	3,331	2,613	2,130	1,665
103 University of Utah	3,443	2,700	2,248	2,268	1,819	1,706	1,659	1,888
104 Univ of Nebraska-Lincoln	3,394	2,675	2,204	1,938	1,985	1,721	1,545	1,203
105 Georgetown University	3,362	4,370	2,972	2,536	1,906	2,561	2,531	1,234
106 Desert Research Institute	3,329	3,079	2,868	3,289	2,972	2,402	2,585	2,375
107 Brown University	3,307	4,291	5,086	4,250	3,848	3,000	2,227	1,527
108 Loma Linda University	3,266	1,964	3,390	420	331I	350	210I	156I
109 Medical College of Wis	3,189	3,684	3,243	2,018	1,422	1,131	1,043I	933I
110 Oregon State University	3,167	2,285	1,944	1,890	4,650I	4,245	3,519	3,424
Total, 1st 110 insts.	949,773	828,966	708,527	654,610	576,284	454,959	383,441	308,345
111 Univ of Cal Irvine 1/	3,115	4,582	5,181	4,722	4,295	0	0	0
112 Univ of South Carolina	3,072	1,968	3,053	1,531	1,260	1,442	798	585
113 Univ of Ark Fayetteville	2,947	2,444	3,112	2,323	2,585	2,093	1,391	1,514
114 Univ of Med & Dent of N J	2,908	2,583	1,983	1,461	1,322E	855E	715E	674E
115 Colorado State University	2,883	2,432	1,525	1,178	1,423	6,467	6,750	6,426
116 Howard University	2,869	1,867I	2,116I	1,112	1,026	1,034	38	23
117 Temple University	2,707	2,544	3,699	0	0	274	195	308
118 Univ of Cal Santa Barb 1/	2,655	2,645	2,108	1,970	2,097	0	0	0
119 University of Oklahoma	2,562	1,991	1,950	2,026	2,513	2,328	2,075	2,260
120 Univ Alabama Huntsville	2,529	2,170	1,369	992	914	649	597	427
Total, 1st 120 insts.	978,020	854,192	734,623	671,915	594,025	470,101	396,000	320,562
121 Washington State Univ	2,523	2,258	3,335	2,619	2,261	1,465	1,581	1,517
122 Kans St U - Ag & App Sci	2,483	1,790	2,031	1,515	779	721	848	1,120
123 SUNY at Stony Brook	2,426	3,093	1,624	1,269	1,382	1,412	1,159	898
124 Univ of North Texas	2,407	1,004	783	714	353	347	443	341
125 Northern Illinois Univ	2,351	1,656	1,152	890	824	624I	587I	386
126 University of Tulsa	2,330	2,020	2,093	1,808I	1,457I	1,169E	1,274E	702
127 Indiana University	2,316	2,591	2,658	4,597	3,325	2,718	2,361	2,402
128 Vanderbilt University	2,313	2,759	2,938	2,313	4,356	3,376	3,040	2,403
129 Univ of Tex at Arlington	2,286	2,407	1,858	1,138	776	739	820	837
130 Polytechnic University	2,278	2,821	1,405	1,245	500	408	904	0
Total, 1st 130 insts.	1,001,733	876,591	759,500	693,023	610,038	483,080	409,017	331,168
131 California Inst of Tech	2,268	3,567	3,273	3,436	3,806	2,678	3,798	2,445
132 Med Univ of So Carolina	2,264	2,089	1,849	1,548	1,379	1,143	854	414
133 U Tex Med Brnch Galveston	2,260	1,847	1,781	1,146	1,274I	917	604	500
134 Dartmouth College	2,251	1,768	1,273	1,024	930I	659I	566	325
135 Univ of Missouri Rolla	2,186	2,385	3,280	1,153	1,338	1,416	1,095	1,281
136 Univ of NC at Chapel Hill	2,179	579	409	509	1,138	1,177	1,047	594
137 SUNY at Buffalo	2,118	1,759	1,178	779	234	243	0	0
138 Utah State University	2,089	1,315	1,529	1,316	1,440	1,365	1,306	1,141
139 University of Wyoming	2,001	1,535	1,800	1,516	1,779	1,821	1,734	1,740
140 San Diego State Univ	1,994	2,303	1,815	1,353	1,012	1,055	326	254
Total, 1st 140 insts.	1,023,343	895,738	777,687	706,503	624,368	495,554	420,347	339,862
141 Oklahoma State University	1,963	1,645	3,761	3,170	3,054	2,972	2,631	2,546I
142 Medical Col of Georgia	1,920	1,810	1,078	1,011	955	705	544	375
143 University of Toledo	1,885	1,152	703	481I	260	100	33	102
144 Southern Ill U-Carbondale	1,884	1,504	1,117	1,191	1,595	1,811	1,575	2,519
145 Institute of Textile Tech	1,869	1,311	1,678	1,238	1,172I	1,109I	1,046I	983I
146 SUNY Col of Env Sci & For	1,867	1,716	1,493	1,153	991I	932	826I	767I
147 Brigham Young University	1,845	1,488	1,438	2,150	2,075I	2,001	1,787	1,207
148 Illinois Inst of Tech	1,819	2,089	1,465	1,002	954	870	294	331
149 The University of Alabama	1,798	2,082	1,448	1,354	1,800	852	505I	339I
150 Northeastern University	1,711	953	730	561	525	615	589I	549I
Total, 1st 150 insts.	1,041,904	911,488	792,598	719,814	637,749	507,521	430,177	349,580

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-38. Industry-sponsored R&D expenditures at universities and colleges: fiscal years 1983-90

[Dollars in thousands]

Institution ranking	1990	1989	1988	1987	1986	1985	1984	1983
151 N J Inst of Technology	1,710	1,125	1,001	1,026	680	297	105	100
152 New York Medical College	1,706	878	2,287	800	656	586	204	469
153 East Carolina University	1,692	1,584	1,044	1,029	856	777I	698	423
154 Alfred University	1,672	1,575	1,432	1,323	984	496	424	579
155 Clarkson University	1,638	1,282	978	1,113	1,288	848	708	755
156 Worcester Poly Institute	1,632	1,683	2,028	1,815	2,090I	2,126I	2,163I	2,437
157 University of Denver	1,625	1,428	1,638	1,027	1,260	1,444E	1,628E	1,811E
158 U of Neb Med Ctr at Omaha	1,595	1,194	792	583	558	549	679	498
159 Oregon Grad Inst Sci/Tech	1,591	1,573	1,225	1,722	1,746I	1,710I	1,732	1,456I
160 Univ of Hawaii-Manoa	1,585	799	378	261	508	250	380	723
Total, 1st 160 insts.	1,058,348	924,509	805,401	730,513	648,375	516,604	438,898	358,831
161 University of N Dakota	1,556	1,264	1,496E	1,583	1,180I	1,062I	947I	696E
162 Univ of South Alabama	1,553	1,277	1,118	914	896	1,010	948	838I
163 U of Houston	1,529	1,375	1,940	1,959	2,851	1,925	1,500	1,239
164 Univ of New Hampshire	1,464	1,183	1,124	1,057	648	895	497	248
165 University of Louisville	1,403	1,697	400	403	0	0	0	322
166 Loyola Univ - Chicago	1,398	1,305	475	407	639	523	618	661
167 Univ of Missouri Kan City	1,383	1,330	1,776	1,062	820	547	223	157
168 Oregon Hlth Sciences Univ	1,325	706	1,094	243	458	104	422	379
169 SUNY at Binghamton	1,308	1,126	909	836	705	524	618	556
170 North Dakota State Univ	1,289	1,257	1,246	1,995	1,892	1,234I	1,105I	377
Total, 1st 170 insts.	1,072,556	937,029	816,979	740,972	658,464	524,428	445,776	364,304
171 The Medical Col of Penna	1,263	0	0	0	321I	309I	630	1,006
172 University of Mississippi	1,250	1,085	998	766	441	890	763	546
173 University of Detroit	1,244	1,125	754	616I	573I	501I	461I	369
174 Marquette University	1,239	921	668	435	314	352	250	256
175 Univ of Nevada - Reno	1,227	1,019	695	687	425I	313I	134I	395E
176 Florida Inst of Tech	1,205	567	518	216	415	193	128	35
177 University of Chicago	1,202	1,520	1,814	1,812	1,203	1,044	962	941
178 St Louis University	1,148	913	651	203I	210I	215I	221I	0
179 U of Arkansas Med Sci Cam	1,117	1,679	753	476	483	279	202	232
180 Western Michigan Univ	1,102	852I	603	710	519	428	24	60E
Total, 1st 180 insts.	1,084,553	946,710	824,433	746,893	663,368	528,952	449,551	368,144
181 SUNY Hlth Sci Ctr - Brkln	1,084	1,425	1,054	897	653I	547I	304	284
182 Univ of Rhode Island	1,071	2,014E	3,544	1,130	752I	375	0	0I
183 George Washington Univ	988	1,100	990	359	399I	440	316	198
184 Cal Poly St U San Luis Ob	986	1,097	711	608I	540I	471I	405I	336I
185 Stevens Institute of Tech	960	600	1,966	1,852	1,786I	1,322I	1,256	0
186 Tenn Technological Univ	945	836	274	371	309I	248	224	199
187 Univ of Cal Riverside 1/	903	1,094	1,692	1,955	2,041	0	0	0
188 Univ of Cal Santa Cruz 1/	825	583	386	460	218	0	0	0
189 Phila Col of Pharm & Sci	772	483	354	291	342	244	233	151I
190 George Mason University	742	348	215I	164	113I	67I	19	13I
Total, 1st 190 insts.	1,093,829	956,290	835,619	754,980	670,521	532,666	452,308	369,325
191 Univ of Texas at Dallas	740	756	785	658	421	59	105	188
192 SUNY at Albany	727	657	399	271	300	144	50	63
193 Oakland University	724	751	472	630	394I	332I	273I	36
194 Albany Med Ctr Grad Sch	719	1,222	1,448	1,661	1,130I	1,099I	1,071I	1,043I
195 Florida State University	669	832	571	280	217	191	72	98
196 Wichita State University	657	588	683	659	492	345	210	173
197 Miami University (Ohio)	643	595	113I	115I	165I	167I	167	135
198 Florida Atlantic Univ	639	626	1,023	999	742	389E	354	0
199 Catholic Univ of America	615	477	313	106	187	323E	103	0
200 South Carolina St College	600	300I	0	0I	0I	0I	0I	0I
Total, 1st 200 insts.	1,100,562	963,094	841,426	760,359	674,569	535,715	454,713	371,061
Total, all other sampled insts.	21,290	21,362	29,418	28,879	24,588	23,509	20,037	17,044
Estimated total non-sampled insts.	13,377	13,533	0	0	0	0	0	0

1/ Data for the University of California in fiscal year 1986 and subsequent years include industry-supported R&D expenditures for the first time. Industry data are not available for fiscal years prior to 1987.

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-39. R&D expenditures at universities and colleges, by science/engineering field: fiscal year 1990

[Dollars in thousands]

Institution ranking	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psy-chology	Social sciences	Other sciences
Total, all institutions	16,324,610	2,681,751	1,781,108	1,047,299	723,920	8,763,473	259,555	702,175	365,330
1 Johns Hopkins Univ	668,915	204,793	93,344	41,412	97,042	208,607	1,368	10,767	11,582
2 Mass Inst of Technology	311,767	127,004	98,119	12,247	14,697	37,711	7,856	4,645	9,488
3 University of Michigan	310,578	53,905	15,329	17,154	10,142	162,379	5,388	39,203	7,078
4 Univ of Wis-Madison	309,841	39,781	29,538	22,033	7,871	178,337	8,553	22,661	1,067
5 Stanford University	305,7001	83,6941	53,8441	5,6451	16,6421	138,5461	4,3971	2,9321	01
6 Cornell University	300,144	39,663	44,887	6,215	27,146	166,595	2,909	12,049	680
7 University of Minnesota	292,046	27,943	16,577	8,802	16,440	204,590	6,042	11,245	407
8 Texas A & M University	272,800	62,791	17,538	64,027	5,475	106,885	686	9,329	6,069
9 Pennsylvania State Univ	256,926	118,070	16,625	14,095	3,553	83,743	4,565	8,943	7,332
10 Univ of Cal Los Angeles	246,795	24,213	23,136	12,215	7,394	157,626	6,681	15,530	0
Total, 1st 10 insts.	3,275,512	781,857	408,937	203,845	206,402	1,445,019	48,445	137,304	43,703
11 University of Washington	245,313	16,985	15,333	21,389	9,183	152,755	5,097	4,921	19,650
12 Univ of Cal San Francisco	238,278	0	0	0	0	238,278	0	0	0
13 Univ of Cal San Diego	237,032	7,454	30,989	73,805	8,743	111,314	2,617	2,110	0
14 Univ of Cal Berkeley	231,061	52,124	50,711	2,389	3,314	87,951	6,414	19,550	3,608
15 Univ of Texas at Austin	226,203	58,968	40,985	25,285	10,543	19,785	2,259	15,335	55,043
16 Univ of Ill Urbana	227,742	66,497	23,258	20,749	18,006	48,002	5,532	10,244	35,454
17 Harvard University	220,812	998	28,340	6,303	3,909	136,522	2,064	39,668	3,008
18 Univ of Cal Davis	198,075	7,794	7,851	1,100	1,130	177,754	522	1,924	0
19 University of Arizona	195,633	14,220	61,723	22,397	4,258	82,067	626	7,944	2,398
20 Univ of Pennsylvania	189,390	10,832	15,494	108	8,983	132,599	1,546	14,956	4,872
Total, 1st 20 insts.	5,487,051	1,017,729	683,621	380,370	276,471	2,632,046	75,122	253,956	167,736
21 Columbia Univ Main Div	182,769	17,647	16,361	24,529	4,462	113,392	1,261	5,117	0
22 Yale University	180,706	6,732	15,391	2,329	2,320	143,093	3,181	2,660	0
23 Ohio State University	178,569	43,810	12,802	3,685	2,828	93,307	395	12,383	9,359
24 Univ of Southern Cal	169,102	27,713	7,463	7,207	31,932	83,856	7,527	3,399	5
25 Georgia Institute of Tech	168,193	116,867	15,314	10,257	6,660	2,153	1,696	5,246	0
26 Univ of MD College Park	166,022	43,964	56,256	6,437	18,176	19,554	4,994	16,641	0
27 University of Georgia	156,745	3,810	6,706	6,737	5,553	111,742	3,656	18,538	0
28 Baylor Col of Medicine	155,125	0	0	0	0	155,122	0	0	0
29 Univ. of Colorado	154,723	20,660	21,438	23,643	4,198	75,398	5,178	4,208	0
30 Washington University	151,249	2,695	6,554	1,999	5,308	133,337	1,036	320	0
Total, 1st 30 insts.	7,150,248	1,301,627	841,906	467,193	372,908	3,563,000	104,046	322,468	177,100
31 Duke University	140,708	6,492	9,085	2,520	2,696	111,309	1,558	7,048	0
32 University of Florida	139,678	30,585	11,804	4,526	4,481	81,616	2,114	3,300	1,252
33 Rutgers the St Univ of NJ	137,985	21,694	17,273	5,949	12,789	59,183	6,198	13,005	1,894
34 Louisiana State Univ	135,849	20,890	9,164	14,845	1,954	83,104	795	4,036	1,061
35 Northwestern University	131,979	17,407	11,770	959	1,844	74,268	981	1,809	22,941
36 N C State Univ at Raleigh	131,133	40,181	5,611	5,301	4,773	71,258	219	3,790	0
37 Purdue University	130,379	32,466	14,467	1,882	5,386	66,601	1,521	6,607	1,449
38 University of Rochester	129,011	22,858	13,329	294	2,079	85,078	4,731	500	142
39 Michigan State University	126,987	14,650	20,898	1,758	478	73,035	2,930	6,622	6,616
40 Univ. Of Tennessee System	126,790	33,093	9,780	1,607	4,860	68,976	1,310	5,698	1,466
Total, 1st 40 insts.	8,480,747	1,541,943	965,087	506,834	414,248	4,337,428	126,403	374,883	213,921
41 Univ of NC at Chapel Hill	123,113	0	6,481	5,192	7,964	92,270	1,013	10,193	0
42 VA Polytech Inst & St U	121,423	44,473	9,710	3,434	3,438	52,477	1,209	6,682	0
43 University of Chicago	117,955	0	26,088	4,089	2,922	79,769	1,008	4,079	0
44 University of Pittsburgh	117,716	5,944	12,904	259	1,673	90,285	1,583	4,246	822
45 Iowa St U of Sci & Tech	115,945	26,974	5,396	548	8,314	65,403	541	6,289	2,480
46 University of Iowa	115,778	9,707	17,498	540	1,745	82,386	1,009	2,893	0
47 University of Connecticut	113,349	20,655	3,937	6,796	2,420	72,266	2,912	3,025	1,338
48 Univ Alabama Birmingham	110,603	4,317	553	4	902	104,185	574	68	0
49 SUNY at Buffalo	109,190	23,166	6,952	820	3,492	66,568	2,794	4,421	977
50 New York University	108,511	0	3,110	139	10,968	84,854	3,605	4,532	1,303
Total, 1st 50 insts.	9,634,330	1,677,179	1,057,716	528,655	458,086	5,127,891	142,651	421,311	220,841

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-39. R&D expenditures at universities and colleges, by science/engineering field: fiscal year 1990

[Dollars in thousands]

Institution ranking	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psy-chology	Social sciences	Other sciences
51 California Inst of Tech	105,730	17,363	42,034	15,957	4,196	24,857	0	471	852
52 Univ of Massachusetts	101,812	9,239	12,984	5,979	9,775	54,677	3,406	4,680	1,072
53 Carnegie-Mellon Univ	100,201	24,000	7,203	1,886	46,574	11,400	4,458	3,412	1,268
54 University of Virginia	96,815	18,116	11,212	5,322	3,902	51,023	2,406	4,535	399
55 University of Miami	94,344	1,911	1,406	18,626	436	68,395	1,419	1,808	343
56 Case Western Reserve Univ	93,384	19,049E	10,022E	244E	207E	60,411E	263E	3,188E	0E
57 Princeton University	91,514	23,048	22,819	6,270	7,061	17,597	5,015	9,704	0
58 UT MD Anderson Cancer Ctr	91,283	0	4,106	0	2,358	84,819	0	0	0
59 Oregon State University	90,688	8,459	3,635	18,623	1,705	51,442	88	2,300	4,436
60 Indiana University	89,191	131	22,532	555	2,702	55,502	3,089	2,943	1,737
Total, 1st 60 insts.	10,589,292	1,798,495	1,195,669	602,117	537,002	5,608,014	162,795	454,352	230,848
61 University of Utah	89,018	16,502	8,115	3,521	4,057	55,460	614	749	0
62 Utah State University	86,450	40,694	4,431	10,843	296	21,760	497	1,275	6,654
63 UT SW Medical Ctr-Dallas	85,919	0	0	0	0	85,919	0	0	0
64 Univ of Ill Chicago	85,268	5,486	8,204	1,121	1,904	59,462	275	3,309	5,507
65 Univ of Missouri Columbia	84,311	9,738	1,997	935	271	64,257	927	5,694	492
66 Yeshiva University	83,968	0	0	0	0	83,968	0	0	0
67 Univ of MD Balt Prof Sch	83,689	0	0	0	0	83,689	0	0	0
68 Emory University	82,774	0	4,631	6	272	74,880	520	2,465	0
69 SUNY at Stony Brook	82,236	2,479	20,878	9,874	3,667	40,081	1,050	3,197	1,010
70 Univ of Cal Irvine	78,074	4,568	12,300	193	4,076	53,261	0	3,666	10
Total, 1st 70 insts.	11,430,999	1,877,962	1,256,225	628,610	551,545	6,230,751	166,678	474,707	244,521
71 Univ of Nebraska-Lincoln	77,598	9,709	4,642	2,996	1,316	55,349	418	2,774	394
72 Univ of Hawaii-Manoa	76,525	1,505	17,953	24,188	899	22,662	279	3,157	5,882
73 Univ of South Florida	76,404	24,961	2,720	5,063	291	40,589	1,358	1,422	0
74 Rockefeller University	75,245	0	11,661	0	866	62,718	0	0	0
75 Vanderbilt University	75,062	7,287	6,681	119	424	57,246	1,744	1,561	0
76 University of Kentucky	74,959	12,172	1,827	131	588	51,789	218	1,082	7,152
77 University of Cincinnati	74,461	14,150	4,669	179	476	51,495	324	351	2,817
78 Colorado State University	73,967	16,026	4,658	8,207	1,023	36,345	1,607	6,092	9
79 Boston University	73,655	3,723	8,956	115	1,063	54,067	482	1,636	3,613
80 Woods Hole Ocngrphic Inst	71,747	11,343	0	60,404	0	0	0	0	0
Total, 1st 80 insts.	12,180,622	1,978,838	1,319,992	730,012	558,491	6,663,011	173,108	492,782	264,388
81 New Mexico State Univ	71,288	35,725I	2,690I	2,108I	9,964I	19,797I	302I	372I	330I
82 Washington State Univ	66,856	6,025	2,425	723	608	46,456	304	8,237	2,078
83 Auburn University	66,795	18,819	3,778	201	1,110	40,638	46	549	1,654
84 Clemson University	66,664	16,414	3,567	161	6,692	34,611	152	4,888	179
85 Oklahoma State University	65,685	15,639	4,837	1,469	1,058	32,289	318	6,866	3,209
86 Univ of Alaska Fairbanks	65,371	6,280	13,761	24,879	212	17,454	0	2,985	0
87 Univ of Med & Dent of N J	64,229	0	0	0	0	64,229	0	0	0
88 CUNY Mt Sinai Sch of Med	63,752	0	0	0	0	63,752	0	0	0
89 Florida State University	62,933	965	13,839	7,996	3,027	7,866	3,166	6,785	19,289
90 Virginia Commonwlth Univ	62,730	48	1,876	0	119	58,528	626	1,533	0
Total, 1st 90 insts.	12,837,125	2,078,753	1,366,765	767,549	581,281	7,048,631	178,022	524,997	291,127
91 Wayne State University	62,455	5,951	7,900	0	398	43,871	716	1,597	2,022
92 University of Kansas	61,144	4,318	6,635	6,196	437	32,597	1,426	329	9,206
93 Univ of Cal Santa Barbara	59,750	22,214	15,216	9,611	2,496	2,608	2,789	4,816	0
94 Arizona State University	58,652	18,618	14,490	7,529	2,164	5,655	2,138	6,797	1,261
95 University of Oklahoma	58,645	8,735	5,030	9,056	2,444	27,424	359	4,995	602
96 Mississippi State Univ	58,492	12,433	1,644	1,318	112	36,357	0	3,350	3,278
97 University of New Mexico	57,728	20,402	3,079	1,628	562	27,115	552	2,001	2,389
98 Tulane University	56,407	2,587	1,043	206	704	46,411	347	3,840	1,269
99 Univ of Cal Riverside	54,892	0	4,044	1,519	654	47,431	191	1,053	0
100 Georgetown University	50,867	0	3,998	388	1,251	41,120	70	3,389	651
Total, 1st 100 insts.	13,416,157	2,174,011	1,429,844	805,000	592,503	7,359,220	186,610	557,164	311,805

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-39. R&D expenditures at universities and colleges, by science/engineering field: fiscal year 1990

(Dollars in thousands)

Institution ranking	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psy-chology	Social sciences	Other sciences
101 Kans St U - Ag & App Sci	50,311	6,186	3,287	251	673	37,289	366	1,652	607
102 Temple University	49,449	234	3,721	8	404	37,121	1,242	7,688	31
103 Univ of South Carolina	47,477	6,974	5,710	9,617	1,994	15,119	2,261	5,343	459
104 Rensselaer Polytech Inst	47,363	33,993	6,263	1,189	3,788	1,326	134	293	377
105 Tufts University	47,009	2,117	1,383	4,148	174	37,300	854	1,033	0
106 Brown University	46,763	7,156	6,162	4,669	9,289	17,654	1,550	283	0
107 U Tex Hlth Sci Ctr Houstn	45,707	0	0	519	0	44,345	0	843	0
108 U Tex Hlth Sci Ctr S Anto	45,663	0	0	0	0	45,663	0	0	0
109 West Virginia University	45,542	5,381	1,437	6,314	10,452	20,625	143	1,170	20
110 U of VT & State Agr Coll	45,162	996	1,025	426	252	41,009	1,246	20	188
Total, 1st 110 insts.	13,886,603	2,237,048	1,457,832	832,141	619,529	7,656,671	194,406	575,489	313,487
111 Dartmouth College	43,737	5,401E	2,497E	926E	459E	33,439E	201E	527E	287E
112 Oregon Hlth Sciences Univ	41,420	0I	0I	0I	0I	40,070I	1,350I	0I	0I
113 U Tex Med Brnch Galveston	40,610	0	0	0	0	40,610	0	0	0
114 University of Delaware	40,119	12,251	6,869	6,721	1,888	9,093	592	2,705	0
115 Wake Forest University	39,654	0	603	0	150	38,636	41	6	218
116 U of Houston	37,978	8,027	19,290	1,934	1,109	4,847	1,584	1,119	68
117 Univ of Ark Fayetteville	36,963	7,059	3,496	130	1,235	22,032	459	2,062	490
118 University of Dayton	36,177	30,722	1,343	70	1,127	344	2,453	118	0
119 Unif Serv Univ of Hlth Sc	36,080	0	0	0	0	36,080	0	0	0
120 Univ of Rhode Island	35,846	3,907	568	18,944	114	9,817	943	1,553	0
Total, 1st 120 insts.	14,275,187	2,304,415	1,492,498	860,866	625,611	7,891,639	202,029	583,579	314,550
121 SUNY Hlth Sci Ctr - Syrcs	35,193	0	0	0	0	35,193	0	0	0
122 University of Idaho	34,936	6,719	1,848	2,006	0	22,172	24	1,848	319
123 Medical College of Wis	34,622	0	0	0	0	34,622	0	0	0
124 Texas Tech University	34,142	8,801	3,147	774	542	15,486	134	4,620	638
125 Syracuse University	33,811	7,560	5,968	1,347	10,647	4,619	486	3,183	1
126 George Washington Univ	32,372	5,898	955	35	5,623	19,240	165	402	54
127 Thomas Jefferson Univ	30,969	0	0	0	0	30,969	0	0	0
128 Brandeis University	30,881	0	3,339	0	954	14,303	1,224	11,061	0
129 Univ of Central Florida	30,618	4,220	7,693	7,084	706	398	205	453	9,859
130 Univ of P R-Mayaguez	30,555	1,616	171	1,424	30	27,165	22	0	127
Total, 1st 130 insts.	14,603,286	2,339,229	1,515,619	873,536	644,113	8,095,806	204,289	605,146	325,548
131 Univ Alabama Huntsville	29,565	11,918	11,024	1,406	4,314	482	3	12	406
132 Montana State University	27,648	2,871	4,410	292	215	18,593	7	1,260	0
133 Lehigh University	27,255	19,596	5,238	359	568	938	282	274	0
134 Univ of Cal Santa Cruz	26,347	314	12,887	4,694	756	6,641	464	591	0
135 University of Oregon	26,346	790	15,114	2,655	778	7,016	1,552	1,204	237
136 Rice University	26,267	4,703	8,470	5,849	6,718	2,917	435	175	0
137 Univ of New Hampshire	25,994	2,334	5,668	9,309	260	5,538	105	1,123	1,657
138 Southern Ill U-Carbondale	25,873	4,193	1,153	895	2,335	12,853	503	1,411	2,530
139 Univ of Maine Orono	23,605	2,925	891	4,350	43	13,779	294	1,323	0
140 Med Univ of So Carolina	23,128	0	0	0	0	23,128	0	0	0
Total, 1st 140 insts.	14,865,314	2,388,873	1,577,474	900,345	660,100	8,187,691	207,934	612,519	330,378
141 N Mex Inst Mining & Tech	22,911	16,090	1,877	4,576	243	125	0	0	0
142 SUNY Hlth Sci Ctr - Brkln	22,873	0	0	0	0	22,873	0	0	0
143 University of Wyoming	22,831	1,910	2,132	3,046	737	12,216	282	809	1,699
144 San Diego State Univ	22,524	4,142	1,568	445	1,676	9,086	1,349	964	3,294
145 University of Mississippi	22,071	2,486	4,091	0	5	14,649	385	455	0
146 SUNY at Albany	22,034	0	2,303	8,881	914	2,928	2,797	4,211	0
147 The University of Alabama	21,488	6,709	3,910	2,244	1,974	2,400	831	2,762	658
148 Univ of Nevada - Reno	21,449	2,866	1,054	4,424	13	11,364	43	1,189	496
149 Rush University	21,284	0	0	0	0	20,363	921	0	0
150 Drexel University	20,079	12,835	3,061	828	997	948	210	1,200	0
Total, 1st 150 insts.	15,084,858	2,435,911	1,597,470	924,789	666,659	8,284,643	214,752	624,109	336,525

See explanatory information, if any, and SOURCE(S) at end of table.

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Table B-39. R&D expenditures at universities and colleges, by science/engineering field: fiscal year 1990

[Dollars in thousands]

Institution ranking	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psy-chology	Social sciences	Other sciences
151 University of Notre Dame	19,373	4,630	10,735	47	443	3,028	150	70	270
152 SUNY Col of Env Sci & For	18,671	6,240	1,538	2,177	359	7,940	0	409	8
153 The Medical Col of Penna	18,643	0	0	0	0	18,643	0	0	0
154 U of Neb Med Ctr at Omaha	17,844	0	0	0	0	17,844	0	0	0
155 University of N Dakota	17,498	8,271	53	2,882	0	4,655	15	861	761
156 US Naval Postgrad School	17,391	5,575	2,477	3,558	1,644	0	0	2,748	1,389
157 Howard University	17,382	2,117I	3,702I	148I	391	10,259I	74I	1,043I	0I
158 St Louis University	17,157	0	180	715	47	16,083	0	4	128
159 Desert Research Institute	16,852	0	0	14,118	0	1,054	0	1,680	0
160 Michigan Tech University	16,037	10,366	1,296	324	77	2,990	0	975	9
Total, 1st 160 insts.	15,261,706	2,473,110	1,617,451	948,758	669,268	8,367,139	214,991	631,899	339,090
161 University of Louisville	15,921	1,118	1,129	243	88	12,027	2	1,314	0
162 Florida A & M University	15,847	1,485	2,080	0E	293	7,539E	0	4,450	0
163 U of MD Center For EES	15,652	0	0	15,652	0	0	0	0	0
164 Univ of Wis-Milwaukee	15,639	2,713	3,175	2,740	237	2,913	461	2,472	928
165 N J Inst of Technology	15,225	4,510	271	4,922	2,086	0	0	241	3,195
166 Northeastern University	14,477	5,527	3,591	0	1,177	3,372	618	400	242
167 Univ of Missouri Rolla	14,285	6,207	2,792	497	490	596	14	16	673
168 Southern Methodist Univ	13,600E	1,509I	1,138I	7,011I	1,723I	743I	170I	836I	470I
169 Hahnemann University	13,595	0	0	0	0	12,134	1,461	0	0
170 Wright State University	13,451	2,611	2,328	171	1,153	6,803	284	101	0
Total, 1st 170 insts.	15,409,268	2,501,490	1,633,655	979,994	676,515	8,412,966	218,001	641,729	344,918
171 New York Medical College	13,244	0	0	0	0	13,244	0	0	0
172 Ohio University	12,982	5,766	1,661	141	28	4,921	365	100	0
173 CUNY City College	12,973	2,762	5,423	259	280	3,390	257	162	440
174 North Dakota State Univ	12,468	1,310	1,448	39	317	7,865	280	895	314
175 Loyola Univ - Chicago	12,260	0	286	0	102	10,236	944	689	3
176 Univ of Texas at Dallas	12,075	1,172	5,314	1,467	848	2,529	218	389	138
177 Memphis State University	12,073	1,100	312	2,946	355	5,465	3,139	1,756	0
178 Medical Col of Georgia	12,052	0	0	0	0	12,052	0	0	0
179 U of Arkansas Med Sci Cam	11,898	0	0	0	0	11,898	0	0	0
180 Brigham Young University	11,608	4,718	2,785	90	95	1,788	1	392	1,739
Total, 1st 180 insts.	15,532,901	2,518,318	1,650,884	984,936	678,540	8,483,354	223,205	646,112	347,552
181 University of Lowell	11,291	3,119	2,737	1,419	900	1,793	0	14	1,309
182 Univ of South Alabama	11,105	47	92	354	34	10,229	206	94	49
183 Colorado School of Mines	10,943	6,097	2,283	601	724	0	0	192	1,046
184 Polytechnic University	10,919	7,864	2,614	0	49	0	0	39	353
185 SUNY at Binghamton	10,680	733	1,820	619	548	1,918	2,186	2,856	0
186 Old Dominion U Res Fdn	10,579	3,966	1,272	1,536	1,210	2,533	11	51	0
187 Eastern VA Medical School	10,496	0	0	0	0	10,496	0	0	0
188 University of Akron	10,372	4,435	4,748	8	347	169	196	469	0
189 University of Denver	10,102	5,371	3,087	0	63	362	1,043	176	0
190 San Jose State University	10,086	2,591	1,064	3,805	234	472	1,910	10	0
Total, 1st 190 insts.	15,639,474	2,552,541	1,670,601	993,278	682,649	8,511,326	228,757	650,013	350,309
191 Univ of North Texas	9,741	496	2,042	1,425	866	2,213	117	1,366	1,216
192 Tenn Technological Univ	9,631	7,832	540	55	60	942	5	47	150
193 College of William & Mary	9,572	0	3,157	4,574	1,060	359	243	179	0
194 South Dakota State Univ	9,511	794	176	352	0	7,699	0	490	0
195 Albany Med Ctr Grad Sch	9,431	0	0	0	0	9,431	0	0	0
196 Oregon Grad Inst Sci/Tech	9,262	1,641	3,784	2,165	1,672	0	0	0	0
197 Georgia State University	8,942	0	2,323	347	1,004	1,933	1,626	1,292	417
198 Northern Illinois Univ	8,930	422I	1,943I	545I	674I	2,292I	285I	2,769I	0I
199 Creighton University	8,929	0	0	0	0	8,929	0	0	0
200 Cleveland State Univ	8,699	3,950	716	13	25	63	39	3,893	0
Total, 1st 200 insts.	15,732,122	2,567,676	1,685,282	1,002,754	688,010	8,545,187	231,072	660,049	352,092
Total, all other sampled insts.	465,534	89,740	75,512	24,118	28,733	184,467	19,189	33,285	10,490
Estimated total non-sampled insts.	126,954	24,335	20,314	20,427	7,177	33,819	9,294	8,841	2,748

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-40. Federally financed R&D expenditures at universities and colleges, by science/engineering field: fiscal year 1990

[Dollars in thousands]

Institution ranking	Total	Engineering	Physical sciences	Environmental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
Total, all institutions	9,611,045	1,534,931	1,290,163	674,129	492,302	5,067,946	169,380	225,434	156,759
1 Johns Hopkins Univ	599,851	200,964	91,640	37,661	96,858	163,223	1,162	5,274	3,069
2 Stanford University	251,446	69,015	48,995	3,390	14,749	110,547	3,186	1,564	01
3 Mass Inst of Technology	233,813	85,559	82,688	9,776	11,103	32,758	7,231	927	3,771
4 University of Washington	203,353	11,359	12,548	20,274	8,549	125,284	4,664	2,919	17,756
5 Univ of Cal San Diego	182,555	5,304	26,689	53,102	4,463	90,706	1,822	469	0
6 University of Michigan	180,456	31,447	10,987	13,150	4,686	103,528	2,996	12,745	917
7 Univ of Wis-Madison	178,862	24,474	22,378	15,865	5,647	93,184	6,876	10,311	127
8 Univ of Cal San Francisco	175,257	0	0	0	0	175,257	0	0	0
9 Cornell University	171,249	22,780	35,290	3,161	22,014	84,922	1,106	1,880	96
10 Univ of Cal Los Angeles	164,442	16,873	21,485	8,654	5,941	104,102	4,782	2,605	0
Total, 1st 10 insts.	2,341,284	467,775	352,700	165,033	174,010	1,083,511	33,825	38,694	25,736
11 Columbia Univ Main Div	156,270	11,777	15,497	23,965	3,565	97,783	1,149	2,534	0
12 Harvard University	154,090	872	24,954	5,815	3,581	102,593	1,299	12,316	2,660
13 Yale University	144,962	4,652	13,814	1,754	6,324	116,188	1,686	544	0
14 University of Minnesota	143,810	10,781	12,563	2,440	12,553	97,634	3,962	3,877	0
15 Pennsylvania State Univ	136,656	74,737	11,153	6,313	5,209	35,704	2,040	2,996	1,504
16 Univ of Pennsylvania	133,747	6,685	14,495	41	5,006	96,957	1,357	3,287	3,919
17 Univ of Cal Berkeley	131,717	29,399	42,182	3,954	3,899	41,857	3,685	6,224	517
18 Univ of Southern Cal	123,714	18,427	7,039	5,196	28,533	57,813	5,227	1,479	0
19 Univ of Ill Urbana	117,170	42,064	17,960	5,876	8,887	22,241	3,447	2,922	13,773
20 Univ. of Colorado	116,394	13,704	18,187	20,252	3,414	54,616	3,549	2,672	0
Total, 1st 20 insts.	3,699,814	680,873	530,544	240,639	253,981	1,806,897	61,226	77,545	48,109
21 Univ of Texas at Austin	109,593	26,031	22,478	6,644	2,497	10,153	1,678	3,269	36,843
22 Duke University	106,053	4,899	7,344	1,817	2,288	84,358	1,471	3,876	0
23 Washington University	105,759	1,262	5,231	1,414	3,472	93,531	704	145	0
24 University of Rochester	105,644	19,203	12,328	202	1,904	69,149	2,319	424	115
25 University of Chicago	96,327	0	23,941	3,728	2,511	64,416	704	1,027	0
26 Georgia Institute of Tech	94,842	65,901	8,635	5,784	9,393	1,214	956	2,959	0
27 Texas A & M University	93,001	13,388	8,021	45,980	2,943	20,262	310	1,639	458
28 University of Arizona	92,920	6,989	32,929	6,644	3,110	39,626	469	1,687	1,466
29 Univ of NC at Chapel Hill	92,468	0	5,400	2,614	5,420	72,374	939	5,721	0
30 University of Pittsburgh	90,700	2,967	10,141	236	1,136	72,720	1,456	1,264	780
Total, 1st 30 insts.	4,687,121	821,513	666,992	315,702	288,655	2,334,700	72,232	99,556	87,771
31 California Inst of Tech	90,577	15,186	37,172	15,155	3,378	18,668	0	424	594
32 New York University	80,756	0	2,745	68	9,941	63,771	3,316	356	559
33 University of Iowa	79,046	4,412	14,360	138	503	58,187	542	904	0
34 Ohio State University	78,878	13,781	8,063	1,993	2,141	42,665	135	8,913	1,187
35 Univ of Cal Davis	77,424	4,149	6,909	996	426	64,036	434	474	0
36 Baylor Col of Medicine	75,793	0	0	0	0	75,793	0	0	0
37 Univ Alabama Birmingham	74,486	1,023	325	0	198	72,524	378	38	0
38 Case Western Reserve Univ	70,515	12,638	5,807	156	189	50,890	232	603	0
39 University of Miami	68,144	1,061	1,332	14,981	383	47,724	1,269	1,394	0
40 SUNY at Buffalo	66,876	7,900	4,129	565	2,235	49,673	912	1,139	323
Total, 1st 40 insts.	5,449,616	881,663	747,834	349,754	308,049	2,878,631	79,450	113,801	90,434
41 Vanderbilt University	66,747	5,018	6,068	104	363	52,674	1,433	1,087	0
42 Univ of MD College Park	66,410	16,336	30,835	4,593	4,591	6,287	1,194	2,574	0
43 Yeshiva University	65,066	0	0	0	0	65,066	0	0	0
44 University of Florida	64,614	14,766	7,068	1,940	2,423	36,453	995	663	306
45 Carnegie-Mellon Univ	64,550	13,040	5,944	31	35,450	4,625	3,403	1,863	194
46 Purdue University	64,464	18,301	10,897	1,331	4,195	25,697	1,183	1,454	1,406
47 Woods Hole Ocngrphic Inst	62,356	9,714	0	52,642	0	0	0	0	0
48 University of Utah	62,297	7,872	6,099	1,978	2,771	42,728	488	361	0
49 Northwestern University	61,812	10,195	9,357	768	1,031	34,869	767	605	4,220
50 Boston University	60,459	2,476	8,314	80	949	45,408	349	586	2,297
Total, 1st 50 insts.	6,088,391	979,381	832,416	413,221	359,822	3,192,438	89,262	122,994	98,857

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-40. Federally financed R&D expenditures at universities and colleges, by science/engineering field: fiscal year 1990

[Dollars in thousands]

Institution ranking	Total	Engineering	Physical sciences	Environmental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
51 Utah State University	58,965	38,495	3,039	4,998	151	10,194	307	209	1,572
52 University of Virginia	58,801	9,776	8,134	4,670	3,091	30,665	2,064	251	150
53 Univ. Of Tennessee System	58,648	19,355	6,408	745	1,787	28,510	338	1,491	14
54 Michigan State University	58,221	4,922	14,485	740	374	30,013	1,748	3,089	2,850
55 Indiana University	57,155	42	17,818	322	2,125	33,223	2,174	997	454
56 Univ of Massachusetts	56,018	4,752	8,432	1,200	5,591	29,848	2,463	1,242	490
57 SUNY at Stony Brook	55,911	2,014	15,165	6,018	2,562	27,702	849	1,521	80
58 UT SW Medical Ctr-Dallas	54,965	0	0	0	0	54,965	0	0	0
59 New Mexico State Univ	54,688	32,984[1]	2,157[1]	1,797[1]	8,775[1]	8,463[1]	250[1]	262[1]	0[1]
60 Univ of Cal Irvine	52,492	2,608	11,110	0	3,353	34,182	0	1,229	10
Total, 1st 60 insts.	6,654,255	1,094,329	919,164	433,711	389,631	3,480,203	99,455	133,285	104,477
61 Emory University	52,367	0	3,872	0	205	47,700	391	199	0
62 Princeton University	51,559	11,931	16,288	3,930	4,818	11,174	2,387	1,031	0
63 Colorado State University	50,744	11,768	3,735	7,414	731	22,459	1,556	3,074	7
64 Oregon State University	50,544	5,445	2,183	16,568	737	21,948	63	693	2,907
65 Louisiana State Univ	48,802	8,345	4,912	5,975	326	28,599	390	234	21
66 Univ of Cal Santa Barbara	47,873	18,807	13,336	7,029	1,888	1,843	2,075	2,895	0
67 VA Polytech Inst & St U	45,949	22,304	4,648	1,580	1,518	13,035	664	2,200	0
68 University of Cincinnati	44,966	6,903	3,007	86	345	32,820	222	121	1,462
69 Univ of Ill Chicago	43,968	2,335	5,607	265	1,370	32,058	163	817	1,353
70 University of Georgia	43,864	395	2,492	1,826	2,079	34,431	1,137	1,504	0
Total, 1st 70 insts.	7,134,891	1,182,562	979,244	478,384	403,648	3,726,270	108,503	146,053	110,227
71 N C State Univ at Raleigh	43,787	15,077	3,797	2,625	2,083	19,244	128	833	0
72 CUNY Mt Sinai Sch of Med	43,607	0	0	0	0	43,607	0	0	0
73 University of Connecticut	43,477	3,450	1,159	4,341	545	32,658	830	339	155
74 Univ of Hawaii-Manoa	42,665	714	12,905	15,393	889	8,474	241	524	3,525
75 Virginia Commonwlth Univ	41,606	35	1,299	0	99	39,440	489	244	0
76 Rutgers the St Univ of NJ	40,977	4,262	9,765	710	6,389	12,821	2,593	4,437	0
77 Univ of MD Balt Prof Sch	38,841	0	0	0	0	38,841	0	0	0
78 Tufts University	38,290	1,626	1,184	3,737	174	30,518	749	302	0
79 Brown University	36,919	5,704	5,352	3,961	6,139	14,315	1,301	144	0
80 Rockefeller University	36,788	0	5,365	0	48	31,375	0	0	0
Total, 1st 80 insts.	7,541,848	1,213,430	1,020,073	509,151	420,014	3,997,563	114,834	152,876	113,907
81 Georgetown University	36,093	0	3,212	336	975	29,137	61	2,372	0
82 Iowa St U of Sci & Tech	34,043	11,496	2,157	218	1,545	16,825	10	1,792	0
83 Univ of Med & Dent of N J	33,185	0	0	0	0	33,185	0	0	0
84 Florida State University	32,927	54	6,799	4,183	824	3,224	1,449	257	16,137
85 Univ of Alaska Fairbanks	31,896	2,662	7,950	14,079	133	6,324	0	748	0
86 U of VT & State Agr Coll	30,555	504	662	164	182	28,017	1,002	5	19
87 Univ of South Florida	30,481	18,910	1,459	2,785	134	6,250	655	288	0
88 Wake Forest University	30,182	0	353	0	150	29,671	0	0	8
89 Dartmouth College	30,135	4,065[1]	2,386[1]	547[1]	267[1]	22,735[1]	341	101[1]	0[1]
90 University of Kentucky	29,612	2,821	1,453	93	504	21,041	217	744	2,739
Total, 1st 90 insts.	7,860,957	1,253,942	1,046,504	531,556	424,728	4,193,972	118,262	159,183	132,810
91 U Tex Hlth Sci Ctr S Anto	29,431	0	0	0	0	29,431	0	0	0
92 University of Dayton	29,044	24,163	1,044	56	1,046	277	2,446	12	0
93 U Tex Hlth Sci Ctr Houstn	29,017	0	0	400	0	27,835	0	782	0
94 UT MD Anderson Cancer Ctr	28,889	0	1,860	0	1,047	25,982	0	0	0
95 Wayne State University	28,488	2,121	2,304	0	109	23,079	465	410	0
96 Tulane University	28,331	493	413	25	307	24,894	129	1,835	235
97 Oregon Hlth Sciences Univ	27,241	0[1]	0[1]	0[1]	0[1]	26,154[1]	1,087[1]	0[1]	0[1]
98 Washington State Univ	26,884	2,037	1,849	527	433	18,048	155	1,942	1,893
99 George Washington Univ	26,817	4,715	858	24	5,232	15,728	141	81	38
100 University of Kansas	26,786	2,478	2,788	576	297	15,184	764	15	4,684
Total, 1st 100 insts.	8,141,885	1,289,949	1,057,620	533,164	433,199	4,400,584	123,449	164,260	139,660

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-40. Federally financed R&D expenditures at universities and colleges, by science/engineering field: fiscal year 1990

[Dollars in thousands]

Institution ranking	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psy-chology	Social sciences	Other sciences
101 Arizona State University	26,590	4,933	6,697	7,073	1,022	3,228	1,552	2,076	9
102 Temple University	26,164	95	1,177	0	179	19,551	565	4,597	0
103 University of New Mexico	25,449	10,689	1,989	802	118	10,373	418	785	275
104 Univ of Missouri Columbia	24,422	1,624	970	409	184	19,340	492	1,402	1
105 Rensselaer Polytech Inst	22,809	16,370	3,016	573	1,824	639	65	141	181
106 Univ of Nebraska-Lincoln	22,686	1,337	3,008	679	489	16,259	119	754	41
107 Thomas Jefferson Univ	22,451	0	0	0	0	22,451	0	0	0
108 U Tex Med Brnch Galveston	21,693	0	0	0	0	21,693	0	0	0
109 Medical College of Wis	21,594	0	0	0	0	21,594	0	0	0
110 Mississippi State Univ	21,426	8,199	1,114	575	112	9,910	0	1,151	365
Total, 1st 110 insts.	8,377,169	1,333,196	1,075,591	543,275	437,127	4,545,622	126,660	175,166	140,532
111 Univ Alabama Huntsville	21,355	8,108	9,339	914	2,567	427	0	0	0
112 Univ of South Carolina	20,387	2,308	3,936	2,827	563	8,328	1,123	1,415	87
113 Univ of Rhode Island	20,511	1,689	358	14,239	73	2,334	806	1,012	0
114 University of Oregon	20,151	722	8,895	2,206	684	5,803	1,274	567	0
115 Rice University	19,997	2,677	6,640	2,274	6,355	1,664	253	134	0
116 Syracuse University	18,924	3,738	4,204	609	5,459	3,783	304	827	0
117 Brandeis University	18,819	0	2,616	0	698	10,549	1,086	3,870	0
118 West Virginia University	18,451	3,264	994	5,106	600	8,260	89	124	14
119 Oklahoma State University	17,744	6,931	2,485	116	323	6,754	75	1,035	25
120 University of Delaware	17,588	4,305	4,325	3,786	1,448	2,472	385	867	0
Total, 1st 120 insts.	8,571,296	1,366,938	1,119,383	575,352	455,897	4,595,996	132,055	185,017	140,658
121 U of Houston	17,575	2,754	9,692	321	651	2,873	907	316	61
122 US Naval Postgrad School	17,333	5,575	2,443	3,543	1,635	0	0	2,748	1,389
123 University of Oklahoma	16,871	2,009	1,736	2,399	754	9,289	104	576	4
124 Univ of Cal Riverside	15,806	0	3,848	892	324	10,499	113	130	0
125 Kans St U - Ag & App Sci	15,651	1,921	2,857	167	330	9,392	157	488	339
126 University of Mississippi	14,973	1,875	3,642	0	0	8,947	283	226	0
127 San Diego State Univ	14,647	3,318	1,290	177	1,102	6,263	1,087	599	811
128 Auburn University	14,629	5,017	1,024	93	432	6,760	28	108	1,167
129 SUNY Hlth Sci Ctr - Brkln	14,574	0	0	0	0	14,574	0	0	0
130 SUNY at Albany	14,497	0	1,578	4,953	634	1,936	2,321	3,075	0
Total, 1st 130 insts.	8,727,852	1,389,407	1,147,493	587,897	461,759	4,666,529	137,055	193,283	144,429
131 Univ of New Hampshire	14,455	847	4,738	5,224	163	2,397	105	867	114
132 University of N Dakota	14,398	6,793	34	2,704	0	4,127	9	399	332
133 Univ of P R-Mayaguez	14,337	1,063	171	1,251	21	11,759	0	0	72
134 Clemson University	14,221	4,703	1,089	46	1,092	5,838	34	1,419	0
135 St Louis University	14,106	0	90	704	40	13,264	0	4	4
136 Univ of Cal Santa Cruz	13,855	0	5,810	2,725	480	4,308	401	131	0
137 University of Idaho	13,812	4,101	885	998	0	7,246	2	488	92
138 Florida A & M University	13,110	1,485	1,929	0E	163	6,891E	0	2,642	0
139 Howard University	13,067	1,498I	2,953I	118I	32I	7,830I	62I	574I	0I
140 University of Notre Dame	12,867	1,928	8,904	28	365	1,437	118	69	18
Total, 1st 140 insts.	8,866,080	1,411,825	1,174,096	601,695	464,115	4,731,626	137,786	199,876	145,061
141 University of Wyoming	12,207	1,382	1,859	1,825	641	6,001	268	147	84
142 Univ of Nevada - Reno	11,922	1,870	916	2,467	13	6,524	17	115	0
143 The Medical Col of Penna	11,704	0	0	0	0	11,704	0	0	0
144 Unif Serv Univ of Hlth Sc	11,288	0	0	0	0	11,288	0	0	0
145 Lehigh University	11,242	7,353	2,744	172	206	473	170	124	0
146 Southern Methodist Univ	11,000E	677I	773I	6,896I	1,482I	336I	170I	666I	0I
147 Med Univ of So Carolina	10,910	0	0	0	0	10,910	0	0	0
148 Univ of Ark Fayetteville	10,831	2,193	1,286	7	213	6,754	7	323	48
149 CUNY City College	10,554	1,757	4,905	214	279	2,664	142	153	440
150 Northeastern University	10,217	3,469	2,264	0	1,130	2,635	460	71	188
Total, 1st 150 insts.	8,977,955	1,430,526	1,188,843	613,276	468,079	4,790,915	139,020	201,475	145,821

See explanatory information, if any, and SOURCE(S) at end of table.

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Table B-40. Federally financed R&D expenditures at universities and colleges, by science/engineering field: fiscal year 1990

[Dollars in thousands]

Institution ranking	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psy-chology	Social sciences	Other sciences
151 SUNY Hlth Sci Ctr - Syrcs	9,965	0	0	0	0	9,965	0	0	0
152 Texas Tech University	9,695	2,668	735	177	117	4,013	8	1,977	0
153 Univ of Central Florida	9,354	1,144	1,288	791	392	103	112	0	5,524
154 U of Neb Med Ctr at Omaha	9,078	0	0	0	0	9,078	0	0	0
155 Montana State University	9,052	762	2,072	112	73	5,816	0	217	0
156 Univ of Maine Orono	9,046	606	720	2,806	27	4,305	212	370	0
157 New York Medical College	9,028	0	0	0	0	9,028	0	0	0
158 Desert Research Institute	8,767	0	0	6,983	0	519	0	1,265	0
159 University of Louisville	8,637	506	910	35	77	7,006	0	103	0
160 Hahnemann University	8,244	0	0	0	0	7,406	838	0	0
Total, 1st 160 insts.	9,068,821	1,436,212	1,194,568	624,180	468,765	4,848,154	140,190	205,407	151,345
161 Medical Col of Georgia	8,045	0	0	0	0	8,045	0	0	0
162 Southern Ill U-Carbondale	8,035	1,124	138	521	114	5,303	266	429	140
163 Eastern VA Medical School	7,782	0	0	0	0	7,782	0	0	0
164 NC Ag & Tech State Univ	7,503	3,644	371	0	631	2,682	127	18	30
165 University of Denver	7,476	3,842	2,417	0	0	299	750	168	0
166 Wright State University	7,426	1,048	1,221	0	731	4,238	182	6	0
167 San Jose State University	7,370	1,790	669	2,936	94	68	1,813	0	0
168 Univ of South Alabama	7,237	5	61	156	29	6,771	161	53	1
169 Old Dominion U Res Fdn	7,036	3,520	1,225	1,173	988	130	0	0	0
170 Polytechnic University	7,025	5,218	1,530	0	49	0	0	28	200
Total, 1st 170 insts.	9,143,756	1,456,403	1,202,200	628,966	471,401	4,883,472	143,489	206,109	151,716
171 The University of Alabama	6,941	2,871	1,931	378	60	795	279	202	425
172 Oregon Grad Inst Sci/Tech	6,837	1,043	2,811	1,406	1,577	0	0	0	0
173 Boston College	6,798	0	2,649	392	3,065	488	55	149	0
174 Catholic Univ of America	6,783	1,571	3,906	0	1	623	586	96	0
175 Drexel University	6,761	4,005	1,742	519	158	299	0	38	0
176 Univ of Wis-Milwaukee	6,715	1,193	1,533	1,155	16	1,366	331	865	256
177 U of Arkansas Med Sci Cam	6,654	0	0	0	0	6,654	0	0	0
178 College of William & Mary	6,460	0	2,135	3,346	640	162	58	119	0
179 North Dakota State Univ	6,417	733	804	24	105	4,044	121	466	120
180 Meharry Medical College	6,391	0	0	0	0	6,391	0	0	0
Total, 1st 180 insts.	9,210,513	1,467,819	1,219,711	636,186	477,023	4,904,294	144,919	208,044	152,517
181 Loyola Univ - Chicago	6,203	0	246	0	56	4,814	600	487	0
182 Rush University	6,083	0	0	0	0	5,392	691	0	0
183 Albany Med Ctr Grad Sch	6,073	0	0	0	0	6,073	0	0	0
184 Michigan Tech University	6,045	3,490	1,048	246	59	1,070	0	132	0
185 Med Col of Ohio at Toledo	5,956	0	0	0	0	5,956	0	0	0
186 Univ of Texas at Dallas	5,888	32	3,718	601	272	1,080	108	77	0
187 N Mex Inst Mining & Tech	5,610	2,519	1,087	1,940	0	64	0	0	0
188 Alabama A & M University	5,560	77	2,716	0	0	2,630	0	137	0
189 Univ of Texas at El Paso	5,451	2,616	611	556	399	958	201	110	0
190 Univ of P R-Med Sci Cmpus	5,366	0	0	0	0	5,366	0	0	0
Total, 1st 190 insts.	9,268,748	1,476,553	1,229,137	639,529	477,809	4,937,697	146,519	208,987	152,517
191 Brigham Young University	5,357	3,313	940	88	70	653	0	0	293
192 Colorado School of Mines	5,310	2,576	1,519	162	518	0	0	99	436
193 Morehouse School of Med	5,149	01	01	01	01	5,1491	01	01	01
194 Tuskegee University	4,783	652	212	0	0	3,834	0	29	56
195 University of Lowell	4,662	1,310	1,302	1,017	82	884	0	14	53
196 Kent State University	4,656	77	1,861	71	1,313	901	170	263	0
197 CUNY Hunter College	4,531	0	1,797	15	40	1,903	744	32	0
198 U of MD Baltimore County	4,147	475	1,387	0	549	1,045	351	340	0
199 Ohio University	4,140	2,332	841	0	0	700	267	0	0
200 Southern U & A&M College	4,094	429	87	0	307	3,217	0	54	0
Total, 1st 200 insts.	9,315,577	1,487,717	1,239,083	640,882	480,688	4,955,983	148,051	209,818	153,355
Total, all other sampled insts.	235,398	38,215	40,637	18,647	8,957	99,135	13,798	13,386	2,623
Estimated total non-sampled insts.	60,070	8,999	10,443	14,600	2,657	12,828	7,531	2,230	781

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-41. Non-Federal R&D expenditures at universities and colleges, by science/engineering field: fiscal year 1990

[Dollars in thousands]

Institution ranking	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psy-chology	Social sciences	Other sciences
Total, all institutions	6,713,565	1,146,820	490,945	373,170	231,618	3,695,526	90,175	476,741	208,571
1 Texas A & M University	179,799	49,403	9,517	18,047	2,532	86,623	376	7,690	5,611
2 University of Minnesota	148,236	17,162	4,014	6,362	3,887	106,956	2,080	7,368	407
3 Univ of Wis-Madison	130,979	15,307	7,160	6,168	2,224	85,153	1,677	12,350	940
4 University of Michigan	130,122	22,458	4,342	4,004	5,456	58,851	2,392	26,458	6,161
5 Cornell University	128,895	16,883	9,597	3,054	5,132	81,673	1,803	10,169	584
6 Univ of Cal Davis	120,651	3,645	942	104	704	113,718	88	1,450	0
7 Pennsylvania State Univ	120,270	43,333	5,472	7,782	1,344	48,039	2,525	5,947	5,828
8 Univ of Texas at Austin	118,610	32,937	18,507	18,641	8,046	9,632	581	12,066	18,200
9 University of Georgia	112,878	3,415	4,214	4,911	3,474	77,311	2,519	17,034	0
10 Univ of Ill Urbana	110,572	24,433	5,298	14,873	9,119	25,761	2,085	7,322	21,681
Total, 1st 10 insts.	1,301,012	228,976	69,063	83,946	41,918	693,717	16,126	107,854	59,412
11 University of Arizona	102,713	7,231	28,794	15,753	1,148	42,441	157	6,257	932
12 Ohio State University	99,691	30,029	4,739	1,692	687	50,642	260	3,470	8,172
13 Univ of MD College Park	99,612	27,628	25,421	1,844	13,585	13,267	3,800	14,067	0
14 Univ of Cal Berkeley	99,344	22,755	8,559	1,435	1,415	46,094	2,729	13,326	3,091
15 Rutgers the St Univ of NJ	97,008	19,432	7,508	5,239	6,400	46,362	3,605	8,568	1,894
16 N C State Univ at Raleigh	87,346	25,104	1,814	2,676	2,690	52,014	91	2,957	0
17 Louisiana State Univ	87,047	12,545	4,252	8,870	1,628	24,505	405	3,802	1,040
18 Univ of Cal Los Angeles	82,353	7,340	1,651	3,561	1,453	53,524	1,899	12,925	0
19 Iowa St U of Sci & Tech	81,902	15,478	3,239	330	6,769	48,578	531	4,497	2,480
20 Baylor Col of Medicine	79,329	0	0	0	0	79,329	0	0	0
Total, 1st 20 insts.	2,217,357	394,488	155,010	125,346	77,693	1,180,473	29,603	177,723	77,021
21 Mass Inst of Technology	77,954	41,445	15,431	2,471	3,594	4,953	625	3,718	5,717
22 VA Polytech Inst & St U	75,474	22,169	5,062	1,854	1,920	39,442	545	4,482	0
23 University of Florida	75,064	15,819	4,736	2,586	2,058	45,163	1,119	2,637	946
24 Georgia Institute of Tech	73,351	50,966	6,679	4,473	7,267	939	740	2,287	0
25 Northwestern University	70,167	7,212	2,413	191	813	39,399	214	1,204	18,721
26 University of Connecticut	69,872	17,205	2,778	2,455	1,875	39,608	2,082	2,686	1,183
27 Johns Hopkins Univ	69,064	3,829	1,704	3,751	184	45,384	206	5,493	8,513
28 Michigan State University	68,766	9,728	6,413	1,018	104	43,022	1,182	3,533	3,766
29 Univ. Of Tennessee System	68,142	13,738	3,372	862	3,073	40,466	972	4,207	1,452
30 Harvard University	66,722	126	3,386	488	328	33,929	765	27,352	348
Total, 1st 30 insts.	2,931,933	576,725	206,984	145,495	98,909	1,512,778	38,053	235,322	117,667
31 Purdue University	65,915	14,165	3,570	551	1,191	40,904	238	5,153	43
32 Univ of Cal San Francisco	63,021	0	0	0	0	63,021	0	0	0
33 UT MD Anderson Cancer Ctr	62,394	0	2,246	0	1,311	58,837	0	0	0
34 Univ of Missouri Columbia	59,889	8,114	1,027	526	87	44,917	435	4,292	491
35 Univ of Pennsylvania	55,643	4,147	999	67	1,977	35,642	189	11,669	953
36 Univ of Nebraska-Lincoln	54,912	8,372	1,634	2,317	827	39,090	299	2,020	353
37 Univ of Cal San Diego	54,477	2,150	4,300	20,703	4,280	20,608	795	1,641	0
38 Stanford University	54,254[1]	14,679[1]	4,849[1]	2,255[1]	1,893[1]	27,999[1]	1,211[1]	1,368[1]	01
39 Clemson University	52,443	11,711	2,478	115	5,600	28,773	118	3,469	179
40 Auburn University	52,166	13,802	2,754	108	678	33,878	18	441	487
Total, 1st 40 insts.	3,507,047	653,865	230,841	172,137	116,753	1,906,447	41,456	265,375	120,173
41 Oklahoma State University	47,941	8,708	2,352	1,353	735	25,535	243	5,831	3,184
42 Univ of South Florida	45,923	6,051	1,261	2,278	157	34,339	703	1,134	0
43 Univ of Massachusetts	45,794	4,487	4,552	4,779	2,184	24,829	943	3,438	582
44 Washington University	45,490	1,433	1,323	585	1,836	39,806	332	175	0
45 Univ of Southern Cal	45,388	9,286	424	2,011	3,399	26,043	2,300	1,920	5
46 University of Kentucky	45,347	9,351	374	38	84	30,748	1	338	4,413
47 Univ of MD Balt Prof Sch	44,848	0	0	0	0	44,848	0	0	0
48 SUNY at Buffalo	42,314	15,266	2,823	255	1,257	16,895	1,882	3,282	654
49 University of Washington	41,960	5,626	5,785	1,115	634	27,471	433	2,002	1,894
50 University of Oklahoma	41,774	6,726	3,294	6,657	1,690	18,135	255	4,419	598
Total, 1st 50 insts.	3,953,826	720,799	250,029	191,208	128,729	2,195,096	48,548	287,914	131,503

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-41. Non-Federal R&D expenditures at universities and colleges, by science/engineering field: fiscal year 1990

[Dollars in thousands]

Institution ranking	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psy-chology	Social sciences	Other sciences
51 Univ of Ill Chicago	41,300	3,151	2,597	856	534	27,404	112	2,492	4,154
52 Oregon State University	40,144	3,014	1,452	2,055	968	29,494	25	1,607	1,529
53 Washington State Univ	39,972	3,988	576	196	175	28,408	149	6,295	185
54 Princeton University	39,955	11,117	6,531	2,340	2,243	6,423	2,628	8,673	0
55 Univ of Cal Riverside	39,086	0	196	627	330	36,932	78	923	0
56 Rockefeller University	38,457	0	6,296	0	818	31,343	0	0	0
57 Univ. of Colorado	38,329	6,956	3,251	3,391	784	20,782	1,629	1,536	0
58 University of Virginia	38,014	8,340	3,078	652	811	20,358	342	4,284	149
59 Mississippi State Univ	37,066	4,234	530	743	0	26,447	0	2,199	2,913
60 University of Iowa	36,732	5,295	3,138	402	1,242	24,199	467	1,989	0
Total, 1st 60 insts.	4,342,881	766,894	277,674	202,470	136,634	2,446,886	53,978	317,912	140,433
61 Univ Alabama Birmingham	36,117	3,294	228	4	704	31,661	196	30	0
62 Yale University	35,744	3,080	1,577	575	996	26,905	1,495	2,116	0
63 Carnegie-Mellon Univ	35,651	10,960	1,259	1,855	11,124	6,775	1,055	1,349	1,074
64 Kans St U - Ag & App Sci	34,660	4,265	430	84	343	27,897	209	1,164	268
65 Duke University	34,655	1,593	1,741	703	408	26,951	87	3,172	0
66 University of Kansas	34,358	1,840	3,847	5,620	140	17,413	662	314	4,522
67 Wayne State University	33,967	3,830	5,596	0	289	20,792	251	1,187	2,055
68 Univ of Hawaii-Manoa	33,860	791	5,048	8,795	10	14,188	38	2,633	2,357
69 Univ of Alaska Fairbanks	33,675	3,618	5,811	10,800	79	11,130	0	2,237	0
70 University of New Mexico	32,279	9,713	1,090	826	444	16,742	134	1,216	2,114
Total, 1st 70 insts.	4,687,847	808,878	304,301	231,732	151,171	2,647,340	58,105	333,530	152,790
71 Arizona State University	32,062	13,685	7,793	456	1,142	2,427	586	4,721	1,252
72 Indiana University	31,036	89	4,714	233	577	25,279	915	1,946	1,283
73 Univ of Med & Dent of N J	31,044	0	0	0	0	31,044	0	0	0
74 UT SW Medical Ctr-Dallas	30,954	0	0	0	0	30,954	0	0	0
75 Univ of NC at Chapel Hill	30,645	0	1,081	2,578	2,544	19,896	74	4,472	0
76 Emory University	30,407	0	759	6	67	27,180	129	2,266	0
77 Florida State University	30,006	911	7,040	3,813	2,203	4,642	1,717	6,528	3,152
78 University of Cincinnati	29,495	7,247	1,662	93	131	18,675	102	230	1,355
79 Tulane University	28,076	2,094	630	181	397	21,517	218	2,005	1,034
80 New York University	27,755	0	365	71	1,027	21,083	289	4,176	744
Total, 1st 80 insts.	4,990,327	832,904	328,345	239,163	159,259	2,847,037	62,135	359,874	161,610
81 Utah State University	27,485	2,199	1,392	5,845	145	11,566	190	1,066	5,082
82 West Virginia University	27,091	5,117	443	1,208	9,852	12,365	54	1,046	6
83 University of Pittsburgh	27,016	2,977	2,763	53	537	17,565	157	2,982	42
84 Univ of South Carolina	26,890	4,666	1,774	6,790	1,431	6,791	1,138	3,928	372
85 University of Utah	26,721	8,630	2,016	1,543	1,286	12,732	126	388	0
86 Columbia Univ Main Div	26,499	5,870	864	564	897	15,609	112	2,583	0
87 SUNY at Stony Brook	26,325	465	5,713	3,856	1,105	12,379	201	1,676	930
88 University of Miami	26,200	850	74	3,648	53	20,671	150	414	343
89 Univ of Ark Fayetteville	26,132	4,866	2,210	125	1,022	15,278	452	1,739	442
90 Univ of Cal Irvine	25,582	1,960	1,190	193	723	19,079	0	2,437	0
Total, 1st 90 insts.	5,256,268	867,504	346,784	262,953	176,310	2,991,072	64,685	378,133	168,827
91 SUNY Hlth Sci Ctr - Syrcs	25,228	0	0	0	0	25,228	0	0	0
92 Unif Serv Univ of Hlth Sc	24,792	0	0	0	0	24,792	0	0	0
93 Rensselaer Polytech Inst	24,554	17,623	3,247	616	1,964	687	69	152	196
94 Texas Tech University	24,447	6,133	2,412	597	425	11,473	126	2,643	638
95 University of Rochester	23,367	3,655	1,001	92	175	15,929	2,412	76	27
96 Temple University	23,285	139	1,544	8	225	17,570	677	3,091	31
97 Colorado State University	23,223	4,258	923	793	292	13,886	51	3,018	2
98 Case Western Reserve Univ	22,869	6,411E	4,215E	88E	18E	9,521E	31E	2,585E	0E
99 University of Delaware	22,531	7,946	2,544	2,935	440	6,621	207	1,838	0
100 University of Chicago	21,628	0	2,147	361	411	15,353	304	3,052	0
Total, 1st 100 insts.	5,492,192	913,669	364,817	268,443	180,260	3,132,132	68,562	394,588	169,721

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-41. Non-Federal R&D expenditures at universities and colleges, by science/engineering field: fiscal year 1990

[Dollars in thousands]

Institution ranking	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psy-chology	Social sciences	Other sciences
101 Univ of Central Florida	21,264	3,076	6,405	6,293	314	295	93	453	4,335
102 University of Idaho	21,124	2,618	963	1,008	0	14,926	22	1,360	227
103 Virginia Commonwlth Univ	21,124	13	577	0	20	19,088	137	1,289	0
104 U of Houston	20,403	5,273	9,598	1,613	458	1,974	677	803	7
105 CUNY Mt Sinai Sch of Med	20,145	0	0	0	0	20,145	0	0	0
106 U Tex Med Brnch Galveston	18,917	0	0	0	0	18,917	0	0	0
107 Yeshiva University	18,902	0	0	0	0	18,902	0	0	0
108 Montana State University	18,596	2,109	2,338	180	142	12,777	7	1,043	0
109 Southern Ill U-Carbondale	17,838	3,069	1,015	374	2,221	7,550	237	982	2,390
110 N Mex Inst Mining & Tech	17,301	13,571	790	2,636	243	61	0	0	0
Total, 1st 110 insts.	5,687,806	943,398	386,503	280,547	183,658	3,246,767	69,735	400,518	176,680
111 SUNY Col of Env Sci & For	16,698	6,014	1,211	1,906	335	6,828	0	396	8
112 U Tex Hlth Sci Ctr Houstn	16,690	0	0	119	0	16,510	0	61	0
113 New Mexico State Univ	16,600	2,741I	533I	311I	1,189I	11,334I	52I	110I	330I
114 U Tex Hlth Sci Ctr S Anto	16,232	0	0	0	0	16,232	0	0	0
115 Univ of P R-Mayaguez	16,218	553	0	173	9	15,406	22	0	55
116 Lehigh University	16,013	12,243	2,494	187	362	465	112	150	0
117 Univ of Rhode Island	15,335	2,218	210	4,705	41	7,483	137	541	0
118 Rush University	15,201	0	0	0	0	14,971	230	0	0
119 California Inst of Tech	15,153	2,177	4,862	802	818	6,189	0	47	258
120 Syracuse University	14,887	3,822	1,764	738	5,188	836	182	2,356	1
Total, 1st 120 insts.	5,846,833	973,166	397,577	289,488	191,600	3,343,021	70,470	404,179	177,332
121 Georgetown University	14,774	0	786	52	276	11,983	9	1,017	651
122 U of VT & State Agr Coll	14,607	492	363	262	70	12,992	244	15	169
123 Univ of Maine Orono	14,559	2,319	171	1,544	16	9,474	82	953	0
124 The University of Alabama	14,347	3,838	1,979	1,866	1,914	1,605	552	2,560	233
125 Oregon Hlth Sciences Univ	14,179	0I	0I	0I	0I	13,916I	263I	0I	0I
126 Dartmouth College	13,602	1,336I	111I	379I	192E	10,704I	167I	426I	287I
127 Drexel University	13,318	8,830	1,319	309	839	649	210	1,162	0
128 U of MD Center For EES	13,273	0	0	13,273	0	0	0	0	0
129 Boston University	13,196	1,247	642	35	114	8,659	133	1,050	1,316
130 Medical College of Wis	13,028	0	0	0	0	13,028	0	0	0
Total, 1st 130 insts.	5,985,916	991,228	402,948	307,208	195,021	3,426,031	72,130	411,362	179,988
131 N J Inst of Technology	12,494	3,582	166	3,681E	2,070	0	0	218	2,777E
132 Univ of Cal Santa Cruz	12,492	314	7,077	1,969	276	2,333	63	460	0
133 Med Univ of So Carolina	12,218	0	0	0	0	12,218	0	0	0
134 Brandeis University	12,062	0	723	0	256	3,754	138	7,191	0
135 Univ of Cal Santa Barbara	11,877	3,407	1,880	2,582	608	765	714	1,921	0
136 Univ of New Hampshire	11,539	1,487	930	4,085	97	3,141	0	256	1,543
137 University of Wyoming	10,624	528	273	1,221	96	6,215	14	662	1,615
138 Univ of Missouri Rolla	10,422	6,433	1,996	337	377	281	9	16	973
139 Michigan Tech University	9,992	6,876	248	78	18	1,920	0	843	9
140 Brown University	9,844	1,452	807	708	3,150	3,339	249	139	0
Total, 1st 140 insts.	6,099,480	1,015,307	417,048	321,869	201,969	3,459,997	73,317	423,068	186,905
141 Univ of Nevada - Reno	9,527	996	138	1,957	0	4,840	26	1,074	496
142 Wake Forest University	9,472	0	250	0	0	8,965	41	6	210
143 Memphis State University	9,407	814	243	2,324	132	2,096	2,165	1,633	0
144 Woods Hole Ocngrphic Inst	9,391	1,629	0	7,762	0	0	0	0	0
145 Univ of Wis-Milwaukee	8,924	1,520	1,642	1,585	221	1,547	130	1,607	672
146 Ohio University	8,842	3,434	820	141	28	4,221	98	100	0
147 U of Neb Med Ctr at Omaha	8,766	0	0	0	0	8,766	0	0	0
148 Tufts University	8,719	491	199	411	0	6,782	105	731	0
149 Thomas Jefferson Univ	8,518	0	0	0	0	8,518	0	0	0
150 Tenn Technological Univ	8,345	7,188	263	55	60	598	5	26	150
Total, 1st 150 insts.	6,189,391	1,031,379	420,603	336,104	202,410	3,506,330	75,887	428,245	188,433

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-41. Non-Federal R&D expenditures at universities and colleges, by science/engineering field: fiscal year 1990

[Dollars in thousands]

Institution ranking	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psy-chology	Social sciences	Other sciences
151 Vanderbilt University	8,315	2,269	613	15	61	4,573	311	474	0
152 SUNY Hlth Sci Ctr - Brkln	8,299	0	0	0	0	8,299	0	0	0
153 Univ Alabama Huntsville	8,210	3,810	1,685	492	1,747	55	3	12	406
154 Desert Research Institute	8,085	0	0	7,135	0	535	0	415	0
155 San Diego State Univ	7,877	824	278	268	374	2,823	262	365	2,483
156 Univ of North Texas	7,767	286	1,422	873	767	1,774	58	1,366	1,216
157 SUNY at Albany	7,537	0	732	3,928	280	992	476	1,136	0
158 Univ of Southwestern LA	7,445	1,670	388	98	2,648	1,325	86	591	639
159 University of Akron	7,367	3,395	3,333	8	93	169	196	173	0
160 University of Louisville	7,284	612	219	208	11	5,021	2	1,211	0
Total, 1st 160 insts.	6,267,577	1,044,245	429,269	349,131	208,591	3,531,895	77,281	433,988	193,177
161 University of Dayton	7,133	6,559	299	14	81	67	7	106	0
162 University of Mississippi	7,098	611	449	0	5	5,702	102	229	0
163 SUNY at Binghamton	6,978	572	1,089	250	406	733	1,404	2,524	0
164 The Medical Col of Penna	6,939	0	0	0	0	6,939	0	0	0
165 University of Lowell	6,629	1,809	1,435	402	818	909	0	0	1,256
166 Creighton University	6,524	0	0	0	0	6,524	0	0	0
167 University of Notre Dame	6,506	2,702	1,831	19	78	1,591	32	1	252
168 Rice University	6,270	2,026	1,830	575	363	1,253	182	41	0
169 Brigham Young University	6,251	1,405	1,845	2	55	1,135	1	392	1,446
170 University of Oregon	6,195	68	3,219	449	94	1,213	278	637	237
Total, 1st 170 insts.	6,334,100	1,059,997	441,266	350,842	210,461	3,557,961	79,287	437,918	196,368
171 Univ of Texas at Dallas	6,187	1,140	1,596	866	576	1,449	110	312	138
172 Loyola Univ - Chicago	6,057	0	40	0	46	5,422	344	202	3
173 North Dakota State Univ	6,051	577	644	15	212	3,821	159	429	194
174 Wright State University	6,025	1,563	1,107	171	422	2,565	102	95	0
175 South Dakota State Univ	5,845	557	124	70	0	4,757	0	337	0
176 Florida Inst of Tech	5,752	1,450	994	1,385	E	666	0	8	1,243
177 Northern Illinois Univ	5,679	422I	1,321I	413I	561I	1,207I	147I	1,608I	0I
178 Colorado School of Mines	5,633	3,521	764	439	206	0	0	93	610
179 George Washington Univ	5,555	1,183	67	11	391	3,512	24	321	16
180 Univ of Missouri Kan City	5,543	0	400	58	1,439	2,784	6	328	328
Total, 1st 180 insts.	6,392,427	1,070,410	448,353	354,270	214,320	3,584,144	80,179	441,851	198,900
181 George Mason University	5,517	2,326	47	12	433	300	19	2,379	1
182 Hahnemann University	5,351	0	0	0	0	4,728	623	0	0
183 Georgia State University	5,321	0	642	231	928	936	1,109	1,058	417
184 U of Arkansas Med Sci Cam	5,244	0	0	0	0	5,244	0	0	0
185 Cleveland State Univ	5,004	1,680	317	13	12	60	39	2,883	0
186 Inst Paper Sci and Tech	4,796	2,691	1,135	0	370	600	0	0	0
187 Clarkson University	4,551	3,234	1,001	0	43	132	8	0	133
188 Union College (NY)	4,515	1,334I	776I	206I	558	132I	303I	1,206I	0I
189 Howard University	4,315	619I	749I	30I	7I	2,429I	12I	469I	0I
190 New York Medical College	4,216	0	0	0	0	4,216	0	0	0
Total, 1st 190 insts.	6,441,257	1,082,294	453,020	354,762	216,671	3,602,921	82,292	449,846	199,451
191 Loma Linda University	4,198	0	0	0	0	4,112	0	86	0
192 Northeastern University	4,130	1,758	1,027	0	47	737	158	329	74
193 Medical Col of Georgia	4,007	0	0	0	0	4,007	0	0	0
194 Univ of Tex at Arlington	3,934	2,286	670	18	517	297	3	143	0
195 Polytechnic University	3,894	2,646	1,084	0	0	0	0	11	153
196 Univ of South Alabama	3,868	42	31	198	5	3,458	45	41	48
197 University of Montana	3,864	186	39	105	23	2,226	7	660	618
198 Alfred University	3,723	3,723	0	0	0	0	0	0	0
199 Old Dominion U Res Fdn	3,543	446	47	363	222	2,403	11	51	0
200 University of Toledo	3,450	1,879	1,057	7	38	426	21	22	0
Total, 1st 200 insts.	6,479,868	1,095,260	456,975	355,453	217,523	3,620,587	82,537	451,189	200,344
Total, all other sampled insts.	166,813	36,224	24,099	11,890	9,575	53,949	5,875	18,941	6,260
Estimated total non-sampled insts.	66,884	15,336	9,871	5,827	4,520	20,990	1,763	6,611	1,967

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-42. R&D expenditures at public universities and colleges, by science/engineering field: fiscal year 1990

[Dollars in thousands]

Institution ranking	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psy-chology	Social sciences	Other sciences
Total, all institutions	10,799,382	1,793,870	1,101,083	785,486	364,009	5,761,745	174,828	523,490	294,871
1 University of Michigan	310,578	53,905	15,329	17,154	10,142	162,379	5,388	39,203	7,078
2 Univ of Wis-Madison	309,841	39,781	29,538	22,033	7,871	178,337	8,553	22,661	1,067
3 University of Minnesota	292,046	27,943	16,577	6,804	16,440	204,590	6,042	11,245	407
4 Texas A & M University	272,800	62,791	17,538	64,027	5,475	106,885	686	9,329	6,069
5 Pennsylvania State Univ	256,926	118,070	16,625	14,096	3,553	83,743	4,565	8,943	7,332
6 Univ of Cal Los Angeles	246,795	24,213	23,136	12,215	7,394	157,626	6,681	15,530	0
7 University of Washington	245,313	16,985	15,333	21,389	9,183	152,755	5,097	4,921	19,650
8 Univ of Cal San Francisco	238,278	0	0	0	0	238,278	0	0	0
9 Univ of Cal San Diego	237,032	7,454	30,989	73,805	8,743	111,314	2,617	2,110	0
10 Univ of Cal Berkeley	231,061	52,124	50,711	5,389	5,314	87,951	6,414	19,550	3,608
Total, 1st 10 insts.	2,640,670	403,266	215,776	238,909	74,115	1,483,858	46,043	133,492	45,211
11 Univ of Texas at Austin	228,203	58,968	40,985	25,285	10,543	19,785	2,259	15,335	55,043
12 Univ of Ill Urbana	227,742	66,497	23,258	20,749	18,006	48,002	5,532	10,244	35,454
13 Univ of Cal Davis	198,075	7,794	4,851	1,100	1,130	177,754	552	1,924	0
14 University of Arizona	195,633	14,220	61,723	22,397	4,238	82,067	626	7,944	2,398
15 Ohio State University	178,569	43,810	12,802	3,685	2,828	93,307	395	12,383	9,359
16 Georgia Institute of Tech	168,193	116,867	15,314	10,257	16,660	2,153	1,696	5,246	0
17 Univ of MD College Park	166,022	43,964	56,256	6,437	18,176	19,554	4,994	16,641	0
18 University of Georgia	156,745	3,810	6,706	6,737	5,553	111,742	3,656	18,538	0
19 Univ. of Colorado	154,723	20,660	21,438	23,643	4,198	75,398	5,178	4,208	0
20 University of Florida	139,678	30,585	11,804	4,526	4,481	81,616	2,114	3,300	1,252
Total, 1st 20 insts.	4,454,250	810,441	473,913	363,725	159,948	2,195,236	73,015	229,255	148,717
21 Rutgers the St Univ of NJ	137,985	21,694	17,273	5,949	12,789	59,183	6,198	13,005	1,894
22 Louisiana State Univ	135,849	20,890	9,164	14,845	1,954	83,104	795	4,036	1,061
23 N C State Univ at Raleigh	131,133	40,181	5,611	5,301	4,773	71,258	219	3,790	0
24 Purdue University	130,379	32,466	14,467	1,882	5,386	66,601	1,521	6,607	1,449
25 Michigan State University	126,987	14,650	20,898	1,758	478	73,035	2,930	6,622	6,616
26 Univ. Of Tennessee System	126,790	33,093	9,780	1,607	4,860	68,976	1,310	5,698	1,466
27 Univ of NC at Chapel Hill	123,113	0	6,481	5,192	7,964	92,270	1,013	10,193	0
28 VA Polytech Inst & St U	121,423	44,473	9,710	3,434	3,438	52,477	1,209	6,682	0
29 University of Pittsburgh	117,716	5,944	12,904	259	1,673	90,285	1,583	4,246	822
30 Iowa St U of Sci & Tech	115,945	26,974	5,396	548	8,314	65,403	541	6,289	2,480
Total, 1st 30 insts.	5,721,570	1,050,806	585,597	404,500	211,577	2,917,828	90,334	296,423	164,505
31 University of Iowa	115,778	9,707	17,498	540	1,745	82,386	1,009	2,893	0
32 University of Connecticut	113,349	20,655	3,937	6,796	2,420	72,266	2,912	3,025	1,338
33 Univ Alabama Birmingham	110,603	4,317	553	4	902	104,185	574	68	0
34 SUNY at Buffalo	109,190	23,166	6,952	820	3,492	66,568	2,794	4,421	977
35 Univ of Massachusetts	101,812	9,239	12,984	5,979	9,775	54,677	3,406	4,680	1,072
36 University of Virginia	96,815	18,116	11,212	5,322	3,902	51,023	2,406	4,535	299
37 UT MD Anderson Cancer Ctr	91,283	0	4,106	0	2,358	84,819	0	0	0
38 Oregon State University	90,688	8,459	3,635	18,623	1,705	51,442	88	2,300	4,436
39 Indiana University	89,191	131	22,532	555	2,702	55,502	3,089	2,943	1,737
40 University of Utah	89,018	16,502	8,115	3,521	4,057	55,460	614	749	0
Total, 1st 40 insts.	6,729,297	1,161,098	677,121	446,660	244,635	3,596,156	107,226	322,037	174,364
41 Utah State University	86,450	40,694	4,431	10,843	296	21,760	497	1,275	6,654
42 UT SW Medical Ctr-Dallas	85,919	0	0	0	0	85,919	0	0	0
43 Univ of Ill Chicago	85,268	5,486	8,204	1,121	1,904	59,462	275	3,309	5,507
44 Univ of Missouri Columbia	84,311	9,738	1,997	935	271	64,257	927	5,694	492
45 Univ of MD Balt Prof Sch	83,689	0	0	0	0	83,689	0	0	0
46 SUNY at Stony Brook	82,236	2,479	20,878	9,874	3,667	40,081	1,050	3,197	1,010
47 Univ of Cal Irvine	78,074	4,568	12,300	193	4,076	53,261	0	3,666	10
48 Univ of Nebraska-Lincoln	77,598	9,709	4,642	2,996	1,316	55,349	418	2,774	394
49 Univ of Hawaii-Manoa	76,525	1,505	17,953	24,188	899	22,662	279	3,157	5,882
50 Univ of South Florida	76,404	24,961	2,720	5,063	291	40,589	1,358	1,422	0
Total, 1st 50 insts.	7,545,771	1,260,238	750,246	501,873	257,355	4,123,185	112,030	346,531	194,313

See explanatory information, if any, and SOURCE(S) at end of table.

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Table B-42. R&D expenditures at public universities and colleges, by science/engineering field: fiscal year 1990

[Dollars in thousands]

Institution ranking	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psy-chology	Social sciences	Other sciences
51 University of Kentucky	74,959	12,172	1,827	131	588	51,789	218	1,082	7,152
52 University of Cincinnati	74,461	14,150	4,669	179	476	51,495	324	351	2,817
53 Colorado State University	73,967	16,026	4,658	8,207	1,023	36,345	1,607	6,092	9
54 New Mexico State Univ	71,288	35,725I	2,690I	2,108I	9,964I	19,797I	302I	372I	330I
55 Washington State Univ	66,856	6,025	5,425	723	608	46,456	304	8,237	2,078
56 Auburn University	66,795	18,819	3,778	201	1,110	40,638	46	549	1,654
57 Clemson University	66,664	16,414	3,567	161	6,692	34,611	152	4,888	179
58 Oklahoma State University	65,685	15,639	4,837	1,469	1,058	32,289	318	6,866	3,209
59 Univ of Alaska Fairbanks	65,571	6,280	13,761	24,879	212	17,454	0	2,985	0
60 Univ of Med & Dent of N J	64,229	0	0	0	0	64,229	0	0	0
Total, 1st 60 insts.	8,236,246	1,401,488	792,458	539,931	279,086	4,518,288	115,301	377,953	211,741
61 Florida State University	62,933	965	13,839	7,996	3,027	7,866	3,166	6,785	19,289
62 Virginia Commonwlth Univ	62,730	48	1,876	0	119	58,328	626	1,533	0
63 Wayne State University	62,455	5,951	7,900	0	398	43,871	716	1,597	2,022
64 University of Kansas	61,144	4,318	6,635	6,196	437	32,597	1,426	329	9,206
65 Univ of Cal Santa Barbara	59,750	22,214	15,216	9,611	2,496	2,608	2,789	4,816	0
66 Arizona State University	58,652	18,618	14,490	7,529	2,164	5,655	2,138	6,797	1,261
67 University of Oklahoma	58,645	8,735	5,030	9,056	2,444	27,424	359	4,995	602
68 Mississippi State Univ	58,492	12,433	1,644	1,318	112	36,357	0	3,350	3,278
69 University of New Mexico	57,728	20,402	3,079	1,628	562	27,115	552	2,001	2,389
70 Univ of Cal Riverside	54,892	0	4,044	1,519	654	47,431	191	1,053	0
Total, 1st 70 insts.	8,833,667	1,495,172	866,211	584,784	291,499	4,807,740	127,264	411,209	249,788
71 Kans St U - Ag & App Sci	50,311	6,186	3,287	251	673	37,289	366	1,652	607
72 Temple University	49,449	234	2,721	8	404	37,121	1,242	7,688	31
73 Univ of South Carolina	47,477	6,974	5,710	9,617	1,994	15,119	2,261	5,343	459
74 U Tex Hlth Sci Ctr Houstn	45,707	0	0	519	0	44,345	0	843	0
75 U Tex Hlth Sci Ctr S Anto	45,663	0	0	0	0	45,663	0	0	0
76 West Virginia University	45,542	5,381	1,437	6,314	10,452	20,625	143	1,170	20
77 U of VT & State Agr Coll	45,162	996	1,025	426	252	41,009	1,246	20	188
78 Oregon Hlth Sciences Univ	41,420	0I	0I	0I	0I	40,070I	1,350I	0I	0I
79 U Tex Med Brnch Galveston	40,610	0	0	0	0	40,610	0	0	0
80 University of Delaware	40,119	12,251	6,869	6,721	1,888	9,093	592	2,705	0
Total, 1st 80 insts.	9,285,127	1,527,194	887,260	608,640	307,162	5,138,684	134,464	430,630	251,093
81 U of Houston	37,978	8,027	19,290	1,934	1,109	4,847	1,584	1,119	68
82 Univ of Ark Fayetteville	36,963	7,059	3,496	130	1,235	22,032	459	2,062	490
83 Unif Serv Univ of Hlth Sc	36,080	0	0	0	0	36,080	0	0	0
84 Univ of Rhode Island	35,846	3,907	568	18,944	114	9,817	943	1,553	0
85 SUNY Hlth Sci Ctr - Syrcs	35,193	0	0	0	0	35,193	0	0	0
86 University of Idaho	34,936	6,719	1,848	2,006	0	22,172	24	1,848	319
87 Texas Tech University	34,142	8,801	3,147	774	542	15,486	134	4,620	638
88 Univ of Central Florida	30,618	4,220	7,693	7,084	706	398	205	453	9,859
89 Univ of P R-Mayaguez	30,555	1,616	171	1,424	30	27,165	22	0	127
90 Univ Alabama Huntsville	29,565	11,918	11,024	1,406	4,314	482	3	12	406
Total, 1st 90 insts.	9,627,003	1,579,461	934,497	642,342	315,212	5,312,356	137,838	442,297	263,000
91 Montana State University	27,648	2,871	4,410	292	215	18,593	7	1,260	0
92 Univ of Cal Santa Cruz	26,347	314	12,887	4,694	756	6,641	464	591	0
93 University of Oregon	26,346	790	12,114	2,655	778	7,016	1,552	1,204	237
94 Univ of New Hampshire	25,994	2,334	5,668	9,309	260	5,538	105	1,123	1,657
95 Southern Ill U-Carbondale	25,873	4,193	1,153	895	2,335	12,853	503	1,411	2,530
96 Univ of Maine Orono	23,605	2,925	891	4,350	43	13,779	294	1,323	0
97 Med Univ of So Carolina	23,128	0	0	0	0	23,128	0	0	0
98 N Mex Inst Mining & Tech	22,911	16,090	1,877	4,576	243	125	0	0	0
99 SUNY Hlth Sci Ctr - Brkln	22,873	0	0	0	0	22,873	0	0	0
100 University of Wyoming	22,831	1,910	2,132	3,046	737	12,216	282	809	1,699
Total, 1st 100 insts.	9,874,559	1,610,888	975,629	672,159	320,579	5,435,118	141,045	450,018	269,123

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-42. R&D expenditures at public universities and colleges, by science/engineering field: fiscal year 1990

(Dollars in thousands)

Institution ranking	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psy-chology	Social sciences	Other sciences
101 San Diego State Univ	22,524	4,142	1,568	445	1,676	9,086	1,349	964	3,294
102 University of Mississippi	22,071	2,486	4,091	0	5	14,649	385	455	0
103 SUNY at Albany	22,034	0	2,303	8,881	914	2,928	2,797	4,211	0
104 The University of Alabama	21,488	6,709	3,910	2,244	1,974	5,400	831	2,762	658
105 Univ of Nevada - Reno	21,449	2,866	1,054	4,424	13	11,364	43	1,189	496
106 SUNY Col of Env Sci & For	18,671	6,240	1,538	2,177	359	7,940	0	409	8
107 U of Neb Med Ctr at Omaha	17,844	0	0	0	0	17,844	0	0	0
108 University of N Dakota	17,498	8,271	53	2,882	0	4,655	15	861	761
109 US Naval Postgrad School	17,391	5,575	2,477	3,558	1,644	0	0	2,748	1,389
110 Desert Research Institute	16,852	0	0	14,118	0	1,054	0	1,680	0
Total, 1st 110 insts.	10,072,381	1,647,177	992,623	710,888	327,164	5,507,038	146,465	465,297	275,729
111 Michigan Tech University	16,037	10,366	1,296	324	77	2,990	0	975	9
112 University of Louisville	15,921	1,118	1,129	243	88	12,027	2	1,314	0
113 Florida A & M University	15,847	1,485	2,080	0E	293	7,539E	0	4,450	0
114 U of MD Center For EES	15,652	0	0	15,652	0	0	0	0	0
115 Univ of Wis-Milwaukee	15,638	2,713	3,175	2,740	237	2,913	461	2,472	928
116 N J Inst of Technology	15,225	4,510	471	4,925	2,086	0	0	241	3,195
117 Univ of Missouri Rolla	14,285	9,207	2,792	497	490	296	14	16	973
118 Wright State University	13,451	2,611	2,328	171	1,153	6,803	284	101	0
119 Ohio University	12,982	5,766	1,661	141	28	4,921	365	100	0
120 CUNY City College	12,973	2,762	5,423	259	280	3,390	257	162	440
Total, 1st 120 insts.	10,220,393	1,687,715	1,012,778	735,837	331,896	5,547,917	147,348	475,128	281,274
121 North Dakota State Univ	12,468	1,310	1,448	39	317	7,865	280	895	314
122 Univ of Texas at Dallas	12,075	1,172	5,314	1,467	848	2,529	218	389	138
123 Memphis State University	12,073	1,100	312	2,946	355	2,465	3,139	1,756	0
124 Medical Col of Georgia	12,052	0	0	0	0	12,052	0	0	0
125 U of Arkansas Med Sci Cam	11,898	0	0	0	0	11,898	0	0	0
126 University of Lowell	11,291	3,119	2,737	1,419	900	1,793	0	14	1,309
127 Univ of South Alabama	11,105	47	92	354	34	10,229	206	94	49
128 Colorado School of Mines	10,943	6,097	2,283	601	724	0	0	192	1,046
129 SUNY at Binghamton	10,680	733	1,820	619	548	1,918	2,186	2,856	0
130 Old Dominion U Res Fdn	10,579	3,966	1,272	1,536	1,210	2,533	11	51	0
Total, 1st 130 insts.	10,335,557	1,705,259	1,028,056	744,818	336,832	5,601,199	153,888	481,375	284,130
131 University of Akron	10,372	4,435	4,748	8	347	169	196	469	0
132 San Jose State University	10,086	2,591	1,064	3,805	234	472	1,910	10	0
133 Univ of North Texas	9,741	496	2,042	1,425	866	2,213	117	1,366	1,216
134 Tenn Technological Univ	9,631	7,832	540	55	60	942	5	47	150
135 College of William & Mary	9,572	0	3,157	4,574	1,060	359	243	179	0
136 South Dakota State Univ	9,511	794	176	352	0	7,699	0	490	0
137 Georgia State University	8,942	0	2,323	347	1,004	1,933	1,626	1,292	417
138 Northern Illinois Univ	8,930	422I	1,943I	545I	674I	2,292I	285I	2,769I	0I
139 Cleveland State Univ	8,699	3,950	716	13	25	63	39	3,893	0
140 NC Ag & Tech State Univ	8,657	4,355	402	0	711	2,910	127	122	30
Total, 1st 140 insts.	10,429,698	1,730,134	1,045,167	755,942	341,813	5,620,251	158,436	492,012	285,943
141 Univ of Southwestern LA	8,319	1,736	552	103	2,933	1,669	87	600	639
142 Univ of Missouri Kan City	8,310	0	520	69	1,439	5,420	6	528	328
143 George Mason University	8,011	3,550	104	20	691	496	223	2,926	1
144 University of Montana	7,332	310	39	120	23	4,798	15	1,404	623
145 Kent State University	7,172	77	3,375	198	1,415	1,370	234	368	135
146 Med Col of Ohio at Toledo	7,159	0	0	0	0	7,159	0	0	0
147 Alabama A & M University	7,010	89	3,236	0	0	3,512	0	173	0
148 CUNY Hunter College	6,928	0	2,657	338	108	2,677	845	249	54
149 Univ of Texas at El Paso	6,889	3,399	918	688	412	978	220	274	0
150 Univ of P R-Med Sci Cmpus	6,293	0	0	0	0	6,293	0	0	0
Total, 1st 150 insts.	10,503,121	1,739,295	1,056,568	757,478	348,834	5,654,623	160,066	498,534	287,723
Total, all other sampled insts.	199,314	31,833	31,687	13,029	9,679	82,928	7,011	16,865	6,282
Estimated total non-sampled insts.	96,947	22,742	12,828	14,979	5,496	24,194	7,751	8,091	866

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-43. Federally financed R&D expenditures at public universities and colleges, by science/engineering field: fiscal year 1990

[Dollars in thousands]

Institution ranking	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psy-chology	Social sciences	Other sciences
Total, all institutions	5,608,210	895,062	720,449	454,924	190,860	2,939,469	108,302	166,284	132,861
1 University of Washington	203,353	11,359	12,548	20,274	8,549	125,284	4,664	2,919	17,756
2 Univ of Cal San Diego	182,555	5,304	26,689	53,102	4,463	90,706	1,822	469	0
3 University of Michigan	180,456	31,447	10,987	13,150	4,686	103,528	2,996	12,745	917
4 Univ of Wis-Madison	178,862	24,474	22,378	15,865	5,647	92,184	6,876	10,311	127
5 Univ of Cal San Francisco	175,257	0	0	0	0	175,257	0	0	0
6 Univ of Cal Los Angeles	164,442	16,873	21,485	8,654	5,941	104,102	4,782	2,605	0
7 University of Minnesota	143,810	10,781	12,563	2,440	12,553	97,634	3,962	3,877	0
8 Pennsylvania State Univ	136,656	74,737	11,153	6,313	2,209	35,704	2,040	2,996	1,504
9 Univ of Cal Berkeley	131,717	29,399	42,182	3,954	3,899	41,857	3,685	6,224	517
10 Univ of Ill Urbana	117,170	42,064	17,960	5,876	8,887	22,241	3,447	2,922	13,773
Total, 1st 10 insts.	1,614,278	246,438	177,945	129,628	56,834	889,497	34,274	45,068	34,594
11 Univ. of Colorado	116,394	13,704	18,187	20,252	3,414	54,616	3,549	2,672	0
12 Univ of Texas at Austin	109,593	26,031	22,478	6,644	2,497	10,153	1,678	3,269	36,843
13 Georgia Institute of Tech	94,842	65,901	8,635	5,784	9,393	1,214	956	2,959	0
14 Texas A & M University	93,001	13,388	8,021	45,980	2,943	20,262	310	1,639	458
15 University of Arizona	92,920	6,989	32,929	6,644	3,110	39,626	469	1,687	1,466
16 Univ of NC at Chapel Hill	92,468	0	5,400	2,614	5,420	72,374	939	5,721	0
17 University of Pittsburgh	90,700	2,967	10,141	236	1,136	72,720	1,456	1,264	780
18 University of Iowa	79,046	4,412	14,360	138	503	58,187	542	904	0
19 Ohio State University	78,878	13,781	8,063	1,993	2,141	42,665	135	8,913	1,187
20 Univ of Cal Davis	77,424	4,149	6,909	996	426	64,036	434	474	0
Total, 1st 20 insts.	2,539,544	397,760	313,068	220,909	87,817	1,325,350	44,742	74,570	75,328
21 Univ Alabama Birmingham	74,486	1,023	325	0	198	72,524	378	38	0
22 SUNY at Buffalo	66,876	7,900	4,129	565	2,235	49,673	912	1,139	323
23 Univ of MD College Park	66,410	16,336	30,835	4,503	4,591	6,287	1,194	2,574	0
24 University of Florida	64,614	14,766	7,068	1,940	2,423	36,453	995	663	306
25 Purdue University	64,464	18,301	10,897	1,331	4,195	25,697	1,183	1,454	1,406
26 University of Utah	62,297	7,872	6,099	1,978	2,771	42,728	488	361	0
27 Utah State University	58,965	38,495	3,039	4,998	151	10,194	307	209	1,572
28 University of Virginia	58,801	9,776	8,134	4,670	3,091	30,665	2,064	251	150
29 Univ. Of Tennessee System	58,648	19,355	6,408	745	1,787	28,510	338	1,491	14
30 Michigan State University	58,221	4,922	14,485	740	374	30,013	1,748	3,089	2,850
Total, 1st 30 insts.	3,173,326	536,506	404,487	242,469	109,633	1,658,094	54,349	85,839	81,949
31 Indiana University	57,155	42	17,818	322	2,125	33,223	2,174	997	454
32 Univ of Massachusetts	56,018	4,752	8,432	1,200	7,591	29,848	2,463	1,242	490
33 SUNY at Stony Brook	55,911	2,014	15,165	6,018	2,562	27,702	849	1,521	80
34 UT SW Medical Ctr-Dallas	54,965	0	0	0	0	54,965	0	0	0
35 New Mexico State Univ	54,688	32,984	2,157	1,797	8,775	8,463	250	262	01
36 Univ of Cal Irvine	52,492	2,608	11,110	0	3,353	34,182	0	1,229	10
37 Colorado State University	50,744	11,768	3,735	7,414	731	22,459	1,556	3,074	7
38 Oregon State University	50,544	5,445	2,183	16,568	737	21,948	63	693	2,907
39 Louisiana State Univ	48,802	8,345	4,912	5,975	326	28,599	390	234	21
40 Univ of Cal Santa Barbara	47,873	18,807	13,336	7,029	1,888	1,843	2,075	2,895	0
Total, 1st 40 insts.	3,702,518	623,271	483,335	288,792	137,721	1,921,326	64,169	97,986	85,918
41 VA Polytech Inst & St U	45,949	22,304	4,648	1,580	1,518	13,035	664	2,200	0
42 University of Cincinnati	44,966	6,903	3,007	86	345	32,820	222	121	1,462
43 Univ of Ill Chicago	43,968	2,335	5,607	265	1,370	32,058	163	817	1,353
44 University of Georgia	43,864	395	6,492	1,826	2,079	34,431	1,137	1,504	0
45 N C State Univ at Raleigh	43,787	15,077	3,797	2,623	2,083	19,244	128	833	0
46 University of Connecticut	43,477	3,450	1,159	4,341	545	32,658	830	339	155
47 Univ of Hawaii-Manoa	42,665	714	12,905	15,393	889	8,474	241	524	3,525
48 Virginia Commonwlth Univ	41,606	35	1,299	0	99	39,440	489	244	0
49 Rutgers the St Univ of NJ	40,977	4,262	9,765	710	6,389	12,821	2,593	4,437	0
50 Univ of MD Balt Prof Sch	38,841	0	0	0	0	38,841	0	0	0
Total, 1st 50 insts.	4,132,618	678,746	528,014	315,618	153,038	2,185,148	70,636	109,005	92,413

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-43. Federally financed R&D expenditures at public universities and colleges, by science/engineering field: fiscal year 1990

[Dollars in thousands]

Institution ranking	Total	Engineering	Physical sciences	Environmental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
51 Iowa St U of Sci & Tech	34,043	11,496	2,157	218	1,545	16,825	10	1,792	0
52 Univ of Med & Dent of N J	33,185	0	0	0	0	33,185	0	0	0
53 Florida State University	32,927	54	6,799	4,183	824	3,224	1,449	257	16,137
54 Univ of Alaska Fairbanks	31,896	2,662	7,950	14,079	133	6,324	0	748	0
55 U of VT & State Agr Coll	30,555	504	662	164	182	28,017	1,002	5	19
56 Univ of South Florida	30,481	18,910	1,459	2,785	134	6,250	655	288	0
57 University of Kentucky	29,612	2,821	1,453	93	504	21,041	217	744	2,739
58 U Tex Hlth Sci Ctr S Anto	29,431	0	0	0	0	29,431	0	0	0
59 U Tex Hlth Sci Ctr Houstn	29,017	0	0	400	0	27,835	0	782	0
60 UT MD Anderson Cancer Ctr	28,889	0	1,860	0	1,047	25,982	0	0	0
Total, 1st 60 insts.	4,442,654	715,193	550,354	337,540	157,407	2,383,262	73,969	113,621	111,308
61 Wayne State University	28,488	2,121	2,304	0	109	23,079	465	410	0
62 Oregon Hlth Sciences Univ	27,241	0I	0I	0I	0I	26,154I	1,087I	0I	0I
63 Washington State Univ	26,884	2,037	1,849	527	433	18,048	155	1,942	1,893
64 University of Kansas	26,786	2,478	2,788	576	297	15,184	764	15	4,684
65 Arizona State University	26,590	4,933	6,697	7,073	1,022	3,228	1,552	2,076	9
66 Temple University	26,164	95	1,177	0	179	19,551	565	4,597	0
67 University of New Mexico	25,449	10,689	1,989	802	118	10,373	418	785	275
68 Univ of Missouri Columbia	24,422	1,624	970	409	184	19,340	492	1,402	1
69 Univ of Nebraska-Lincoln	22,686	1,337	3,008	679	489	16,259	119	754	41
70 U Tex Med Brnch Galveston	21,693	0	0	0	0	21,693	0	0	0
Total, 1st 70 insts.	4,699,057	740,507	571,136	347,606	160,238	2,556,171	79,586	125,602	118,211
71 Mississippi State Univ	21,426	8,199	1,114	575	112	9,910	0	1,151	365
72 Univ Alabama Huntsville	21,355	8,108	9,339	914	2,567	427	0	0	0
73 Univ of South Carolina	20,587	2,308	3,936	2,827	563	8,328	1,123	1,415	87
74 Univ of Rhode Island	20,511	1,689	358	14,239	73	2,334	806	1,012	0
75 University of Oregon	20,151	722	8,895	2,206	684	5,803	1,274	567	0
76 West Virginia University	18,451	3,264	994	5,106	600	8,260	89	124	14
77 Oklahoma State University	17,744	6,931	2,485	116	323	6,754	75	1,035	25
78 University of Delaware	17,588	4,305	4,325	3,786	1,448	2,472	385	867	0
79 U of Houston	17,575	2,754	9,692	321	651	2,873	907	316	61
80 US Naval Postgrad School	17,333	5,575	2,443	3,543	1,635	0	0	2,748	1,389
Total, 1st 80 insts.	4,891,778	784,362	614,717	381,239	168,894	2,603,332	84,245	134,837	120,152
81 University of Oklahoma	16,871	2,009	1,736	2,399	754	9,289	104	576	4
82 Univ of Cal Riverside	15,806	0	3,848	892	324	10,499	113	130	0
83 Kans St U - Ag & App Sci	15,651	1,921	2,857	167	330	9,392	157	488	339
84 University of Mississippi	14,973	1,875	3,642	0	0	8,947	283	226	0
85 San Diego State Univ	14,647	3,318	1,290	177	1,102	6,263	1,087	599	811
86 Auburn University	14,629	5,017	1,024	93	432	6,760	28	108	1,167
87 SUNY Hlth Sci Ctr - Brkln	14,574	0	0	0	0	14,574	0	0	0
88 SUNY at Albany	14,497	0	1,578	4,953	634	1,936	2,321	3,075	0
89 Univ of New Hampshire	14,455	847	4,738	5,224	163	2,397	105	867	114
90 University of N Dakota	14,398	6,793	34	2,704	0	4,127	9	399	332
Total, 1st 90 insts.	5,042,279	806,142	635,464	397,848	172,633	2,677,516	88,452	141,305	122,919
91 Univ of P R-Mayaguez	14,337	1,063	171	1,251	21	11,759	0	0	72
92 Clemson University	14,221	4,703	1,089	46	1,092	5,838	34	1,419	0
93 Univ of Cal Santa Cruz	13,855	0	5,810	2,725	480	4,308	401	131	0
94 University of Idaho	13,812	4,101	885	998	0	7,246	2	488	92
95 Florida A & M University	13,110	1,485	1,929	0E	163	6,891E	0	2,642	0
96 University of Wyoming	12,207	1,362	1,859	1,825	641	6,001	268	147	84
97 Univ of Nevada - Reno	11,922	1,870	916	2,467	13	6,524	17	115	0
98 Unif Serv Univ of Hlth Sc	11,288	0	0	0	0	11,288	0	0	0
99 Med Univ of So Carolina	10,910	0	0	0	0	10,910	0	0	0
100 Univ of Ark Fayetteville	10,831	2,193	1,286	7	213	6,754	7	323	48
Total, 1st 100 insts.	5,168,772	822,939	649,409	407,167	175,256	2,755,035	89,181	146,570	123,215
Total, all other sampled insts.	395,565	63,350	64,576	37,767	13,940	176,049	12,705	17,532	9,646
Estimated total non-sampled insts.	43,873	8,773	6,464	9,990	1,664	8,385	6,416	2,182	0

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

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Table B-44. R&D expenditures at private universities and colleges, by science/engineering field: fiscal year 1990

[Dollars in thousands]

Institution ranking	Total	Engineering	Physical sciences	Environmental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
Total, all institutions	5,525,227	887,881	680,024	261,813	359,911	3,001,728	84,726	178,685	70,459
1 Johns Hopkins Univ	668,915	204,793	93,344	41,412	97,042	208,607	1,368	10,767	11,582
2 Mass Inst of Technology	311,767	127,004	98,119	12,247	14,697	37,711	7,856	4,645	9,488
3 Stanford University	305,700[1]	83,694[1]	53,844[1]	5,645[1]	16,642[1]	138,546[1]	4,397[1]	2,932[1]	01
4 Cornell University	300,144	39,663	44,887	6,215	27,146	166,595	2,909	12,049	680
5 Harvard University	220,812	998	28,340	6,303	3,909	132,522	5,064	35,668	3,008
6 Univ of Pennsylvania	189,390	10,832	15,494	108	8,983	133,566	1,546	14,956	4,872
7 Columbia Univ Main Div	182,769	17,647	16,361	24,529	4,462	113,392	1,261	5,117	0
8 Yale University	180,706	6,732	15,391	2,329	7,320	143,093	3,181	2,660	0
9 Univ of Southern Cal	169,102	27,713	7,463	7,207	31,932	83,856	7,527	3,399	5
10 Baylor Col of Medicine	155,122	0	0	0	0	155,122	0	0	0
Total, 1st 10 insts.	2,684,427	519,076	373,243	105,995	212,133	1,316,043	32,109	96,193	29,635
11 Washington University	151,249	2,695	6,554	1,999	5,308	133,337	1,036	320	0
12 Duke University	140,708	6,492	9,085	2,520	2,696	111,309	1,558	7,048	0
13 Northwestern University	131,979	17,407	11,770	959	1,844	74,268	981	1,809	22,941
14 University of Rochester	129,011	22,858	13,329	294	2,079	85,078	4,731	500	142
15 University of Chicago	117,955	0	26,088	4,089	5,922	79,769	1,008	4,079	0
16 New York University	108,511	0	5,110	139	10,968	84,854	3,605	4,532	1,303
17 California Inst of Tech	105,730	17,363	45,034	15,957	4,196	22,857	0	471	852
18 Carnegie-Mellon Univ	100,201	24,000	7,203	1,886	46,574	11,400	4,458	3,412	1,268
19 University of Miami	94,544	1,911	1,406	18,626	436	68,395	1,419	1,808	343
20 Case Western Reserve Univ	93,384	19,049E	10,022E	244E	207E	60,411E	263E	3,188E	0E
Total, 1st 20 insts.	3,857,499	630,851	503,844	152,708	289,363	2,049,721	51,168	123,360	56,484
21 Princeton University	91,514	23,048	22,819	6,270	7,061	17,597	5,015	9,704	0
22 Yeshiva University	83,968	0	0	0	0	83,968	0	0	0
23 Emory University	82,774	0	4,631	6	272	74,880	520	2,465	0
24 Rockefeller University	75,245	0	11,661	0	866	62,718	0	0	0
25 Vanderbilt University	75,062	7,287	6,681	119	424	57,246	1,744	1,561	0
26 Boston University	73,655	3,723	8,956	115	1,063	54,067	482	1,636	3,613
27 Woods Hole Oceanrphic Inst	71,747	11,343	0	60,404	0	0	0	0	0
28 CUNY Mt Sinai Sch of Med	63,752	0	0	0	0	63,752	0	0	0
29 Tulane University	56,407	2,587	1,043	206	704	46,411	347	3,840	1,269
30 Georgetown University	50,867	0	3,998	388	1,251	41,120	70	3,389	651
Total, 1st 30 insts.	4,582,490	678,839	563,633	220,216	301,004	2,551,480	59,346	145,955	62,017
31 Rensselaer Polytech Inst	47,363	33,993	6,263	1,189	3,788	1,326	134	293	377
32 Tufts University	47,009	5,117	1,383	4,148	174	37,300	854	1,033	0
33 Brown University	46,763	7,156	6,162	4,669	9,289	17,654	1,550	283	0
34 Dartmouth College	43,737	5,401E	2,497E	926E	459E	33,439E	201E	527E	287E
35 Wake Forest University	39,654	0	603	0	150	38,636	41	6	218
36 University of Dayton	36,177	30,722	1,343	70	1,127	344	2,453	118	0
37 Medical College of Wis	34,622	0	0	0	0	34,622	0	0	0
38 Syracuse University	33,811	7,560	5,968	1,347	10,647	4,619	486	3,183	1
39 George Washington Univ	32,372	5,898	955	35	5,625	19,240	165	402	54
40 Thomas Jefferson Univ	30,969	0	0	0	0	30,969	0	0	0
Total, 1st 40 insts.	4,974,967	771,686	588,807	232,600	332,261	2,769,629	65,230	151,800	62,954
41 Brandeis University	30,881	0	3,339	0	954	14,303	1,224	11,061	0
42 Lehigh University	27,255	19,596	5,238	359	568	938	282	274	0
43 Rice University	26,267	4,703	8,470	2,849	6,718	2,917	435	175	0
44 Rush University	21,284	0	0	0	0	20,363	921	0	0
45 Drexel University	20,079	12,835	3,061	828	997	948	210	1,200	0
46 University of Notre Dame	19,373	4,630	10,735	47	443	3,028	150	70	270
47 The Medical Col of Penna	18,643	0	0	0	0	18,643	0	0	0
48 Howard University	17,382	2,117[1]	3,702[1]	148[1]	391	10,259[1]	741	1,043[1]	01
49 St Louis University	17,157	0	180	715	47	16,083	0	4	128
50 Northeastern University	14,347	5,227	3,291	0	1,177	3,372	618	400	262
Total, 1st 50 insts.	5,187,635	820,794	626,823	237,546	343,204	2,860,483	69,144	166,027	63,614

See explanatory information, if any, and SOURCE(S) at end of table.

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Table B-44. R&D expenditures at private universities and colleges, by science/engineering field: fiscal year 1990

[Dollars in thousands]

Institution ranking	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psy-chology	Social sciences	Other sciences
51 Southern Methodist Univ	13,600E	1,509I	1,138I	7,011I	1,723I	743I	170I	836I	470I
52 Hahnemann University	13,595	0	0	0	0	12,134	1,461	0	0
53 New York Medical College	13,244	0	0	0	0	13,244	0	0	0
54 Loyola Univ - Chicago	12,260	0	286	0	102	10,236	944	689	3
55 Brigham Young University	11,608	4,718	2,785	90	95	1,788	1	392	1,739
56 Polytechnic University	10,919	7,864	2,614	C	49	0	0	39	353
57 Eastern VA Medical School	10,496	0	0	0	0	10,496	0	0	0
58 University of Denver	10,102	5,371	3,087	0	63	362	1,043	176	0
59 Albany Med Ctr Grad Sch	9,431	0	0	0	0	9,431	0	0	0
60 Oregon Grad Inst Sci/Tech	9,262	1,641	3,784	2,165	1,672	0	0	0	0
Total, 1st 60 insts.	5,302,152	841,897	640,517	246,812	346,908	2,918,917	72,763	168,159	66,179
61 Creighton University	8,929	0	0	0	0	8,929	0	0	0
62 Clarkson University	8,392	5,381	2,120	0	416	334	8	0	133
63 Boston College	8,052	0	3,094	394	3,649	500	69	346	0
64 Loma Linda University	7,547	0	0	0	0	7,461	0	86	0
65 Catholic Univ of America	7,398	1,586	4,305	0	1	701	586	219	0
66 Florida Inst of Tech	7,003	1,633	1,050	1,544	143	1,287	95	8	1,243
67 Illinois Inst of Tech	6,793	4,725	751	670	328	256	63	0	0
68 Meharry Medical College	6,663	0	0	0	0	6,663	0	0	0
69 Stevens Institute of Tech	6,146	5,226	920	0	0	0	0	0	0
70 Morehouse School of Med	5,891	0I	0I	0I	0I	5,891I	0I	0I	0I
Total, 1st 70 insts.	5,374,966	860,448	652,757	249,420	351,445	2,950,939	73,584	168,818	67,555
71 Inst Paper Sci and Tech	5,761	3,240	1,551	0	370	600	0	0	0
72 Union College (NY)	5,459	1,414	970	206	654	706	303	1,206	0
73 Tuskegee University	5,089	705	304	0	0	3,995	0	29	56
74 U Hlth Sci/Chcgo Med Sch	4,695	0	0	0	0	4,695	0	0	0
75 Worcester Poly Institute	4,683	3,082	324	0	327	710	0	240	0
76 Mercer University	4,656	4,154	128	0	0	374	0	0	0
77 University of Tulsa	4,325	2,687	177	167	416	688	125	65	0
78 American University	4,127	0	1,145	0	67	1,085	154	1,676	0
79 Alfred University	4,067	4,067	0	0	0	0	0	0	0
80 Wesleyan University	4,021	0I	1,526I	43I	648I	1,667I	102I	35I	0I
Total, 1st 80 insts.	5,421,849	879,797	658,882	249,836	353,927	2,965,459	74,268	172,069	67,611
81 Marquette University	3,262	1,040	705	0	190	1,133	6	39	149
82 Fairleigh Dickinson Univ	3,183	79	0	2,297	26	181	524	76	0
83 Chas R Drew U of Med & Sc	3,098I	0I	0I	0I	0I	2,438I	0I	660I	0I
84 New York Inst Technology	3,087	743	286	0	1,486	572	0	0	0
85 Texas Col of Osteo Med	2,767	0	0	0	0	2,767	0	0	0
86 Fordham University	2,501	0	209	1	66	707	63	1,455	0
87 Hampton University	2,307	174	1,854	0	279	0	0	0	0
88 Institute of Textile Tech	1,921	1,334	259	105	223	0	0	0	0
89 Xavier University of LA	1,902	0	418	0	0	1,484	0	0	0
90 Bryn Mawr College	1,854	0	456	292	105	368	156	477	0
Total, 1st 90 insts.	5,447,731	883,167	663,069	252,531	356,302	2,975,109	75,017	174,776	67,760
91 Texas Christian Univ	1,823	0	685	15	9	257	854	3	0
92 Amherst College	1,792	0	777	2	10	757	2	68	176
93 Occidental College	1,627	0	164	58	10	1,358	9	28	0
94 Nova University	1,601	0	96	1,242	0	3	210	6	44
95 Santa Clara University	1,569	726	120	0	168	286	17	252	0
96 University of Detroit	1,526	1,061I	171I	0I	0I	90I	92I	44I	68I
97 Seton Hall University	1,515I	0I	514I	0I	1I	52I	874I	74I	0I
98 Wentworth Inst of Tech	1,435	0	0	1,435	0	0	0	0	0
99 Smith College	1,398	0	188	187	123	304	160	436	0
100 Villanova University	1,390	452	219	0	115	301	269	34	0
Total, 1st 100 insts.	5,463,407	885,406	666,003	255,470	356,738	2,978,517	77,504	175,721	68,048
Total, all other sampled insts.	31,814	882	6,536	895	1,492	13,586	5,680	2,214	529
Estimated total non-sampled insts.	30,006	1,593	7,485	5,448	1,681	9,625	1,542	750	1,882

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

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Table B-45. Federally financed R&D expenditures at private universities and colleges, by science/engineering field: fiscal year 1990

[Dollars in thousands]

Institution ranking	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psy-chology	Social sciences	Other sciences
Total, all institutions	4,002,834	639,869	569,714	219,205	301,442	2,128,477	61,078	59,150	23,898
1 Johns Hopkins Univ	599,851	200,964	91,640	37,661	96,858	163,223	1,162	5,274	3,069
2 Stanford University	251,446I	69,015I	48,995I	3,390I	14,749I	110,547I	3,186I	1,564I	0I
3 Mass Inst of Technology	233,813	85,559	82,688	9,776	11,103	32,758	7,231	927	3,771
4 Cornell University	171,249	22,780	35,290	3,161	22,014	84,922	1,106	1,880	96
5 Columbia Univ Main Div	156,270	11,777	15,497	23,965	3,565	97,783	1,149	2,534	0
6 Harvard University	154,090	872	24,954	5,815	3,581	102,593	1,299	12,316	2,660
7 Yale University	144,962	4,652	13,814	1,754	6,324	116,188	1,686	544	0
8 Univ of Pennsylvania	133,747	6,685	14,495	41	7,006	96,957	1,357	3,287	3,919
9 Univ of Southern Cal	123,714	18,427	7,039	5,196	28,533	57,813	5,227	1,479	0
10 Duke University	106,053	4,899	7,344	1,817	2,288	84,358	1,471	3,876	0
Total, 1st 10 insts.	2,075,195	425,630	341,756	92,576	196,021	947,142	24,874	33,681	13,515
11 Washington University	105,759	1,262	5,231	1,414	3,472	93,531	704	145	0
12 University of Rochester	105,644	19,203	12,328	202	1,904	69,149	2,319	424	115
13 University of Chicago	96,327	0	23,941	3,728	2,511	64,416	704	1,027	0
14 California Inst of Tech	90,577	15,186	37,172	15,155	3,378	18,668	0	424	594
15 New York University	80,756	0	2,745	68	9,941	63,771	3,316	356	559
16 Baylor Col of Medicine	75,793	0	0	0	0	75,793	0	0	0
17 Case Western Reserve Univ	70,515	12,638	5,807	156	189	50,890	232	603	0
18 University of Miami	68,144	1,061	1,332	14,981	383	47,724	1,269	1,394	0
19 Vanderbilt University	66,747	5,018	6,068	104	363	52,674	1,433	1,087	0
20 Yeshiva University	65,066	0	0	0	0	65,066	0	0	0
Total, 1st 20 insts.	2,900,523	479,998	436,380	128,384	218,162	1,548,824	34,851	39,141	14,783
21 Carnegie-Mellon Univ	64,550	13,040	5,944	31	35,450	4,625	3,403	1,863	194
22 Woods Hole Ocngrphic Inst	62,356	9,714	0	52,642	0	0	0	0	0
23 Northwestern University	61,812	10,195	9,357	768	1,031	34,869	767	605	4,220
24 Boston University	60,459	2,476	8,314	80	949	45,408	349	586	2,297
25 Emory University	52,367	0	3,872	0	205	47,700	391	199	0
26 Princeton University	51,559	11,931	16,288	3,930	4,818	11,174	2,387	1,031	0
27 CUNY Mt Sinai Sch of Med	43,607	0	0	0	0	43,607	0	0	0
28 Tufts University	38,290	1,626	1,184	3,737	174	30,518	749	302	0
29 Brown University	36,919	5,704	5,355	3,961	6,139	14,315	1,301	144	0
30 Rockefeller University	36,788	0	5,365	0	48	31,375	0	0	0
Total, 1st 30 insts.	3,409,230	534,684	492,059	193,533	266,976	1,812,415	44,198	43,871	21,494
31 Georgetown University	36,093	0	3,212	336	975	29,137	61	2,372	0
32 Wake Forest University	30,182	0	353	0	150	29,671	0	0	8
33 Dartmouth College	30,135	4,065I	2,386I	547I	267I	22,735I	341	101I	0I
34 University of Dayton	29,044	24,163	1,044	56	1,046	277	2,446	12	0
35 Tulane University	28,331	493	413	25	307	24,894	129	1,835	235
36 George Washington Univ	26,817	4,715	858	24	5,232	15,728	141	81	38
37 Rensselaer Polytech Inst	22,809	16,370	3,016	573	1,824	639	65	141	181
38 Thomas Jefferson Univ	22,451	0	0	0	0	22,451	0	0	0
39 Medical College of Wis	21,594	0	0	0	0	21,594	0	0	0
40 Rice University	19,997	2,677	6,640	2,274	6,355	1,664	253	134	0
Total, 1st 40 insts.	3,676,683	587,167	509,981	197,368	283,132	1,981,205	47,327	48,547	21,956
41 Syracuse University	18,924	3,738	4,204	609	5,459	3,783	304	827	0
42 Brandeis University	18,819	0	2,616	0	698	10,549	1,086	3,870	0
43 St Louis University	14,106	0	90	704	40	13,264	0	4	4
44 Howard University	13,067	1,498I	2,953I	118I	32I	7,830I	62I	574I	0I
45 University of Notre Dame	12,867	1,928	8,904	28	365	1,437	118	69	18
46 The Medical Col of Penna	11,704	0	0	0	0	11,704	0	0	0
47 Lehigh University	11,242	7,353	2,744	172	206	473	170	124	0
48 Southern Methodist Univ	11,000E	677I	773I	6,896I	1,482I	336I	170I	666I	0I
49 Northeastern University	10,217	3,469	2,264	0	1,130	2,635	460	71	188
50 New York Medical College	9,028	0	0	0	0	9,028	0	0	0
Total, 1st 50 insts.	3,807,657	605,830	534,529	205,895	292,544	2,042,244	49,697	54,752	22,166

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-45. Federally financed R&D expenditures at private universities and colleges, by science/engineering field: fiscal year 1990

[Dollars in thousands]

Institution ranking	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psy-chology	Social sciences	Other sciences
51 Hahnemann University	8,244	0	0	0	0	7,406	838	0	0
52 Eastern VA Medical School	7,782	0	0	0	0	7,782	0	0	0
53 University of Denver	7,476	3,842	2,417	0	0	299	750	168	0
54 Polytechnic University	7,025	5,218	1,530	0	49	0	0	28	200
55 Oregon Grad Inst Sci/Tech	6,837	1,043	2,811	1,406	1,577	0	0	0	0
56 Boston College	6,798	0	2,649	392	3,065	488	55	149	0
57 Catholic Univ of America	6,783	1,571	3,906	0	1	623	586	96	0
58 Drexel University	6,761	4,005	1,742	519	158	299	0	38	0
59 Meharry Medical College	6,391	0	0	0	0	6,391	0	0	0
60 Loyola Univ - Chicago	6,203	0	246	0	56	4,814	600	487	0
Total, 1st 60 insts.	3,877,957	621,509	549,830	208,212	297,450	2,070,346	52,526	55,718	22,366
61 Rush University	6,083	0	0	0	0	5,392	691	0	0
62 Albany Med Ctr Grad Sch	6,073	0	0	0	0	6,073	0	0	0
63 Brigham Young University	5,357	3,313	940	88	70	653	0	0	293
64 Morehouse School of Med	5,149	0I	0I	0I	0I	5,149I	0I	0I	0I
65 Tuskegee University	4,783	652	212	0	0	3,834	0	29	56
66 Illinois Inst of Tech	3,887	2,329	615	402	233	245	63	0	0
67 Clarkson University	3,841	2,147	1,119	0	373	202	0	0	0
68 Mercer University	3,590	3,259	0	0	0	331	0	0	0
69 U Hlth Sci/Chcgo Med Sch	3,547	0	0	0	0	3,547	0	0	0
70 American University	3,532	0	969	0	67	1,069	154	1,273	0
Total, 1st 70 insts.	3,923,799	633,209	553,685	208,702	298,193	2,096,841	53,434	57,020	22,715
71 Loma Linda University	3,349	0	0	0	0	3,349	0	0	0
72 Chas R Drew U of Med & Sc	3,098I	0I	0I	0I	0I	2,438I	0I	660I	0I
73 Stevens Institute of Tech	2,960	2,217	743	0	0	0	0	0	0
74 Creighton University	2,405	0	0	0	0	2,405	0	0	0
75 Worcester Poly Institute	2,365	1,403	266	0	230	454	0	12	0
76 Fairleigh Dickinson Univ	2,364	62	0	2,295	0	7	0	0	0
77 Hampton University	2,307	174	1,854	0	279	0	0	0	0
78 Texas Col of Osteo Med	2,031	0	0	0	0	2,031	0	0	0
79 Wesleyan University	1,949	0I	887I	71	127I	883I	26I	19I	0I
80 Xavier University of LA	1,902	0	418	0	0	1,484	0	0	0
Total, 1st 80 insts.	3,948,529	637,065	557,853	211,004	298,829	2,109,892	53,460	57,711	22,715
81 Marquette University	1,855	283	549	0	58	875	4	0	86
82 Fordham University	1,723	0	191	0	59	672	0	801	0
83 Wentworth Inst of Tech	1,435	0	0	1,435	0	0	0	0	0
84 Texas Christian Univ	1,362	0	389	0	6	136	831	0	0
85 Nova University	1,341	0	96	1,035	0	0	210	0	0
86 Seton Hall University	1,302I	0I	428I	0I	0I	0I	874I	0I	0I
87 Bryn Mawr College	1,252	0	336	279	91	188	126	232	0
88 Florida Inst of Tech	1,251	183	56	159	137	621	95	0	0
89 Amherst College	1,233	0	593	0	0	640	0	0	0
90 Cal Sch Prof Psych-L A	1,163	0	0	0	0	0	1,163	0	0
Total, 1st 90 insts.	3,962,446	637,531	560,491	213,912	299,180	2,113,024	56,763	58,744	22,801
91 Fisk University	1,156	0	916	0	0	240	0	0	0
92 University of Tulsa	1,037	206	125	135	177	299	95	0	0
93 Cal Sch Prof Psych-Fresno	985	0	0	0	0	0	985	0	0
94 Inst Paper Sci and Tech	965	549	416	0	0	0	0	0	0
95 Union College (NY)	944	80I	194I	0I	96I	574I	0I	0I	0I
96 Villanova University	943	151	156	0	88	279	269	0	0
97 Clark University	919	0	519	267	62	70	1	0	0
98 Ponce School of Medicine	919	0	0	0	0	919	0	0	0
99 University of the Pacific	897	154I	21I	0I	0I	722I	0I	0I	0I
100 Morehouse College	868	0	4	0	0	864	0	0	0
Total, 1st 100 insts.	3,972,079	638,671	562,842	214,314	299,603	2,116,991	58,113	58,744	22,801
Total, all other sampled insts.	14,559	972	2,893	281	846	7,043	1,850	358	316
Estimated total non-sampled insts.	16,196	226	3,979	4,610	993	4,443	1,115	48	781

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-46. Total and federally financed R&D expenditures at historically black colleges and universities: fiscal years 1987-90

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1990	1989	1988	1987	1990	1989	1988	1987
Total, all institutions	134,859	123,591	92,458	73,759	111,394	100,973	75,625	61,230
1 Howard University	17,382	17,125I	16,870I	16,615	13,067	12,146I	11,227I	10,308
2 Florida A & M University	15,847	14,171	12,079	9,364	13,110	10,509	8,674	8,100
3 NC Ag & Tech State Univ	8,657	6,706	6,401	4,461	7,503	5,752	5,717	3,603
4 Alabama A & M University	7,010	6,272	6,140	4,534	5,560	4,801	5,121	4,356
5 Meharry Medical College	6,663	6,564	5,228	4,797	6,391	6,397	5,125	4,414
6 Morehouse School of Med	5,891	4,320	2,222	0I	5,149	4,238	1,815	0
7 Tuskegee University	5,089	5,348	3,752	2,752	4,783	4,967	3,543	2,598
8 U of the Virgin Islands	4,883E	4,734	4,666	2,386E	2,639E	2,600	2,578	1,447E
9 Southern U & A&M College	4,856	3,967	3,451	2,196	4,094	3,233	3,112	2,196
10 Central State University	3,976	673	NA	NA	2,323	449	NA	NA
Total, 1st 10 insts.	80,254	69,880	60,809	47,105	64,619	55,092	46,912	37,022
11 Jackson State University	3,762	3,747	3,403	2,260	3,381	3,624	2,801	2,040
12 Prairie View A & M Univ	3,521	3,680	1,741E	1,498	3,406	3,568	1,560E	1,334
13 Tennessee State Univ	3,300	3,442	3,408	2,719	3,290	3,382	3,382	2,717
14 Virginia State University	3,258	2,620	2,476	2,356I	2,744	2,056	2,476	2,326I
15 Kentucky State University	2,856	1,721	1,697	1,856	2,856	1,721	1,697	1,827
16 Lincoln University	2,771	2,901	NA	NA	2,600	2,706	NA	NA
17 South Carolina St College	2,593	1,694I	796	878I	1,308	1,014I	721	810I
18 University of D C	2,569	2,271I	1,973	1,485	1,455	1,330I	1,205	738
19 Fort Valley State Univ.	2,313	2,173	NA	NA	1,938	1,741	NA	NA
20 Hampton University	2,307	2,168	NA	NA	2,307	2,168	NA	NA
Total, 1st 20 insts.	109,504	96,297	76,303	60,157	89,904	78,402	60,754	48,814
21 Alcorn State University	1,935	1,850	1,692E	1,623I	1,487	1,850	1,692I	1,623I
22 Xavier University of LA	1,902	1,294	NA	NA	1,902	1,294	NA	NA
23 U of MD Eastern Shore	1,850	2,944	1,736	1,522	1,552	2,203	1,736	1,522
24 Texas Southern Univ	1,546	1,519	1,703	1,491I	1,363	1,293	1,419	1,263I
25 Langston University	1,200	2,349	NA	NA	1,200	1,961	NA	NA
26 Univ of Ark Pine Bluff	1,188	1,148	1,199	1,047	1,188	1,148	1,199	1,047
27 Albany State College	1,173	1,725	366	263	516	653	348	263E
28 Fisk University	1,156	1,157	1,741	862	1,156	1,131	1,379	777
29 Tougaloo College	1,028	1,191	NA	NA	566	787	NA	NA
30 Delaware State College	1,027	1,027	NA	NA	920	920	NA	NA
Total, 1st 30 insts.	123,509	112,501	84,740	66,965	101,754	91,642	68,527	55,309
31 Coppin State College	1,017	834	NA	NA	387	388	NA	NA
32 Morehouse College	868	1,093	NA	NA	868	997	NA	NA
33 Lincoln University (PA)	845	768E	867	648I	632	692E	789	591I
34 Norfolk State University	826	652	425	304	825	648	400	266
35 Selma University	790	816	NA	NA	790	816	NA	NA
36 Morgan State University	657	649	742E	635	655	638	742E	346
37 Morris Brown College	647E	164	NA	NA	464E	164	NA	NA
38 Bethune Cookman College	554	440	NA	NA	494	420	NA	NA
39 Southern Univ-New Orleans	553I	500	NA	NA	459I	420E	NA	NA
40 Winston-Salem State Univ	532	650	NA	NA	532	650	NA	NA
Total, 1st 40 insts.	130,798	119,067	86,774	68,552	107,860	97,475	70,458	56,512
41 Spelman College	505	399	NA	NA	348	272	NA	NA
42 Johnson C. Smith Univ	477	480	NA	NA	467	480	NA	NA
43 Bennett College	425	364	NA	NA	358	229	NA	NA
44 Alabama State University	423	456	NA	NA	403	456	NA	NA
45 Grambling State Univ	409	106	64	136	182	106	64	128
46 Oakwood College	226	0	NA	NA	226	0	NA	NA
47 Savannah State College	221	179	NA	NA	221	179	NA	NA
48 Claflin College	205	0E	NA	NA	203	0E	NA	NA
49 North Carolina Cntrl Univ	199	555E	571	515I	199	422E	350	317I
50 Rust College	156	214	NA	NA	156	214	NA	NA
Total, 1st 50 insts.	134,044	121,820	87,409	69,203	110,623	99,833	70,872	56,957

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-46. Total and federally financed R&D expenditures at historically black colleges and universities: fiscal years 1987-90

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1990	1989	1988	1987	1990	1989	1988	1987
51 Fayetteville State Univ	154	360	NA	NA	154	258	NA	NA
52 West Virginia State Col	146	81	NA	NA	138	75	NA	NA
53 Southern Univ-Shreveport	131	148	NA	NA	131	148	NA	NA
54 Philander Smith College	120	165	NA	NA	120	154	NA	NA
55 Jarvis Christian College	75	60	NA	NA	75	60	NA	NA
56 Knoxville College	66I	60	NA	NA	55I	50	NA	NA
57 Miss Valley State Univ	43	14	31	0	43	14	31	0
58 Bowie State University	35	0	NA	NA	35	0	NA	NA
59 Trenholm State Tech Col	30	22	NA	NA	5	5	NA	NA
60 Elizabeth City State Univ	15	26	NA	NA	15	26	NA	NA
Total, 1st 60 insts.	134,859	122,756	87,440	69,203	111,394	100,623	70,903	56,957
61 Benedict College	0	0	NA	NA	0	0	NA	NA
62 Cheyney University of PA	0	0E	NA	NA	0	0E	NA	NA
63 Clark Atlanta University	0I	0E	NA	NA	0I	0E	NA	NA
64 Dillard University	0	469	0	0	0	0	0	0
65 Paul Quinn College	0	0	NA	NA	0	0	NA	NA
66 Shaw University	0	0	NA	NA	0	0	NA	NA
67 Stillman College	0	0	NA	NA	0	0	NA	NA
68 Talladega College	0	366	NA	NA	0	350	NA	NA
69 Voorhees College	0	0	NA	NA	0	0	NA	NA
70 Wiley College	0	0	NA	NA	0	0	NA	NA
Total, 1st 70 insts.	134,859	123,591	87,440	69,203	111,394	100,973	70,903	56,957
Total, all other sampled insts.	0	0	5,018	4,556	0	0	4,722	4,273

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-47. Total and federally financed R&D expenditures in engineering at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1990	1989	1988	1987	1990	1989	1988	1987
Total, all institutions	2,681,751	2,403,788	2,096,863	1,891,716	1,534,931	1,385,080	1,229,568	1,112,122
1 Johns Hopkins Univ	204,793	209,748	162,390	172,790	200,964	206,629	159,976	170,869
2 Mass Inst of Technology	127,004	116,367	107,281	110,835	85,559	80,356	77,811	80,331
3 Pennsylvania State Univ	118,070	97,276	82,807	68,326	74,737	59,260	54,583	45,736
4 Georgia Institute of Tech	116,867	116,109	95,484	84,329	65,901	65,178	52,700	44,239
5 Stanford University	83,694I	78,311	75,828	68,008	69,015I	65,502	63,486	56,610
6 Univ of Ill Urbana	66,497	58,003	58,693	51,825	42,064	37,780	39,175	33,585
7 Texas A & M University	62,791	52,541	37,517	34,314	13,388	14,743	11,441	8,467
8 Univ of Texas at Austin	58,968	50,944	46,086	44,682	26,031	22,894	21,150	21,489
9 University of Michigan	53,905	46,866	42,808	35,850	31,447	27,507	24,633	18,566
10 Univ of Cal Berkeley	52,124	47,393	42,432	39,888	29,399	28,936	25,371	24,446
Total, 1st 10 insts.	944,713	873,558	751,326	710,847	638,505	608,785	530,326	504,338
11 VA Polytech Inst & St U	44,473	36,123	30,282	26,916	22,304	17,234	14,436	13,443
12 Univ of MD College Park	43,964	41,624	37,807	34,532	16,336	15,655	15,397	15,881
13 Ohio State University	43,810	40,616	28,723	24,993	13,781	12,567	12,180	10,758
14 Utah State University	40,694	23,852	18,763	5,243	38,495	21,007	15,352	3,624
15 N C State Univ at Raleigh	40,181	34,421	31,219	24,068	15,077	11,209	9,823	8,132
16 Univ of Wis-Madison	39,781	34,697	32,287	30,076	24,474	21,745	21,125	18,810
17 Cornell University	39,663	38,648	39,822	36,439	22,780	22,630	24,232	21,592
18 New Mexico State Univ	35,725I	30,060	27,195	16,370	32,984I	27,538	25,023	14,905
19 Rensselaer Polytech Inst	33,993	27,106	25,095	18,434	16,370	11,674	12,592	10,403
20 Univ. Of Tennessee System	33,093	29,852	23,623	20,193	19,355	18,788	14,431	12,319
Total, 1st 20 insts.	1,340,090	1,210,557	1,046,142	948,111	860,461	788,832	694,917	634,205
21 Purdue University	32,466	32,873	32,206	30,371	18,301	18,733	19,612	19,104
22 University of Dayton	30,722	24,511	24,776	24,134	24,163	20,423	20,541	20,338
23 University of Florida	30,585	27,162	21,526	19,751	14,766	13,379	9,325	8,258
24 University of Minnesota	27,943	27,709	24,184	23,161	10,781	10,421	8,890	8,280
25 Univ of Southern Cal	27,713	24,525	23,480	20,141	18,427	16,495	17,280	15,336
26 Iowa St U of Sci & Tech	26,974	22,225	20,292	18,402	11,496	8,821	7,734	4,458
27 Univ of South Florida	24,961	21,257	2,846	1,886	18,910	15,248	544	364
28 Univ of Cal Los Angeles	24,213	22,975	21,497	19,929	16,873	16,679	15,733	14,141
29 Carnegie-Mellon Univ	24,000	25,982	25,548	21,770	13,040	14,934	14,005	11,863
30 SUNY at Buffalo	23,166	19,630	17,874	7,591	7,900	6,486	8,321	4,203
Total, 1st 30 insts.	1,612,833	1,462,406	1,260,371	1,135,247	1,015,118	930,451	816,902	740,550
31 Princeton University	23,048	20,957	17,964	15,084	11,931	10,508	10,521	9,873
32 University of Rochester	22,858	23,768	18,897	18,613	19,203	19,963	15,714	13,746
33 Univ of Cal Santa Barbara	22,214	15,237	13,461	11,377	18,807	12,352	11,178	9,251
34 Rutgers the St Univ of NJ	21,694	19,463	15,296	14,925	4,262	3,680	2,423	1,997
35 Louisiana State Univ	20,890	13,216	11,911	8,480	8,345	2,979	2,144	2,129
36 Univ. of Colorado	20,660	15,625	12,523	7,969	13,704	10,816	8,248	5,010
37 University of Connecticut	20,655	20,039	11,549	8,310	3,450	3,498	2,337	1,746
38 University of New Mexico	20,402	14,763	14,220	19,444	10,689	7,444	8,333	13,762
39 Lehigh University	19,596	18,214	18,949	16,995	7,353	6,186	6,449	5,866
40 Case Western Reserve Univ	19,049E	18,089	16,062	14,104	12,638	13,173	10,911	10,072
Total, 1st 40 insts.	1,823,899	1,641,777	1,411,203	1,270,548	1,125,500	1,021,030	895,160	814,002
41 Auburn University	18,819	16,996	15,775	15,290	5,017	7,664	9,124	7,166
42 Arizona State University	18,618	14,642	14,991	17,317	4,933	5,742	5,745	5,177
43 University of Virginia	18,116	14,382	12,301	10,688	9,776	7,621	6,184	5,669
44 Columbia Univ Main Div	17,647	15,429	15,677	12,806	11,777	9,386	12,747	9,743
45 Northwestern University	17,407	14,728	13,422	11,032	10,195	8,200	7,512	6,545
46 California Inst of Tech	17,363	16,670	17,124	14,436	15,186	13,641	14,516	12,357
47 University of Washington	16,985	16,738	16,374	19,101	11,359	10,581	11,396	10,453
48 University of Utah	16,502	15,959	13,106	9,970	7,872	9,365	7,795	5,297
49 Clemson University	16,414	14,179	13,212	11,602	4,703	3,239	3,114	2,035
50 N Mex Inst Mining & Tech	16,090	16,325	15,114	20,335	2,519	4,378	3,874	7,451
Total, 1st 50 insts.	1,997,860	1,797,825	1,558,299	1,413,125	1,208,837	1,100,847	977,067	885,895

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-47. Total and federally financed R&D expenditures in engineering at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Institution ranking	Total				Federally financed			
	1990	1989	1988	1987	1990	1989	1988	1987
51 Colorado State University	16,026	13,853	13,151	10,344	11,768	10,472	10,328	7,866
52 Oklahoma State University	15,639	9,812	7,715	5,853	6,931	3,577	1,691	1,196
53 Michigan State University	14,650	11,494	10,139	9,264	4,922	3,604	3,250	3,224
54 University of Arizona	14,220	12,583	10,473	9,912	6,989	6,114	4,398	4,464
55 University of Cincinnati	14,150	12,911	11,037	9,636	6,903	5,956	5,429	5,176
56 Drexel University	13,835	11,101	10,390	10,459	4,005	3,336	4,007	5,318
57 Mississippi State Univ	12,433	10,145	6,774	6,024	8,199	6,791	3,953	3,404
58 University of Delaware	12,251	10,874	9,596	11,699	4,305	4,461	4,025	4,954
59 University of Kentucky	12,172	11,336	6,661	4,383	2,821	3,032	1,749	1,842
60 Univ Alabama Huntsville	11,918	10,156	6,298	5,349	8,108	6,519	4,272	3,316
Total, 1st 60 insts.	2,134,154	1,912,090	1,650,533	1,496,048	1,273,788	1,154,709	1,020,169	926,655
61 Woods Hole Ocngrphic Inst	11,343	9,445	11,600	9,716	9,714	7,290	8,600	8,263
62 Univ of Pennsylvania	10,832	9,981	8,878	8,745	6,685	6,439	5,743	4,808
63 Michigan Tech University	10,366	8,861	8,642	7,701	3,490	2,483	3,349	2,538
64 Univ of Missouri Columbia	9,738	5,653	4,682	3,930	1,624	1,034	805	761
65 Univ of Nebraska-Lincoln	9,709	7,253	4,649	3,613	1,337	991	1,000	709
66 University of Iowa	9,707	8,710	8,845	6,162	4,412	3,833	3,678	3,297
67 Univ of Massachusetts	9,239	8,814	7,428	6,557	4,752	4,142	3,777	3,286
68 Univ of Missouri Rolla	9,207	11,435	12,812	9,881	2,774	2,315	2,697	3,161
69 Texas Tech University	8,801	8,839	7,485	6,721	2,668	3,432	2,840	2,508
70 University of Oklahoma	8,735	8,529	6,783	5,380	2,009	2,247	2,152	1,543
Total, 1st 70 insts.	2,231,831	1,999,610	1,732,337	1,564,454	1,313,253	1,188,915	1,054,810	957,529
71 Oregon State University	8,459	5,130	6,302	5,115	5,445	2,902	3,714	2,792
72 University of N Dakota	8,271	8,210	7,583	7,151	6,793	6,056	5,702	5,512
73 U of Houston	8,027	8,020	6,725	7,359	2,754	3,137	2,999	2,609
74 Polytechnic University	7,864	8,013	6,071	6,657	5,218	5,661	4,305	4,613
75 Tenn Technological Univ	7,832	6,359	6,336E	5,875	644	267	235	159
76 Univ of Cal Davis	7,794	7,124	6,402	5,546	4,149	4,015	4,224	3,645
77 Syracuse University	7,560	11,575	6,863	4,985	3,738	6,357	3,170	2,147
78 Univ of Cal San Diego	7,454	6,373	4,488	3,775	5,304	4,634	2,806	1,611
79 Vanderbilt University	7,287	5,798	5,219	3,693	5,018	3,793	2,555	1,884
80 Brown University	7,156	6,382	6,205	6,460	5,704	5,357	5,525	5,725
Total, 1st 80 insts.	2,309,535	2,072,594	1,794,531	1,621,070	1,358,020	1,231,094	1,090,045	988,226
81 Univ of Ark Fayetteville	7,059	5,818	4,146	4,576	2,193	1,787	1,085	993
82 Univ of South Carolina	6,974	3,088	2,400	1,178	2,308	1,298	926	517
83 Yale University	6,732	6,052	5,794	6,123	4,652	4,228	4,079	4,038
84 University of Idaho	6,719	6,477	6,032	4,143	4,101	3,755	3,113	2,119
85 The University of Alabama	6,709	5,555	5,884	3,837	2,871	5,514	3,064	1,703
86 Duke University	6,492	5,407	3,233	2,812	4,899	3,744	2,103	1,486
87 Univ of Alaska Fairbanks	6,280	4,674	4,110E	3,313I	2,662	1,617	1,422E	1,036I
88 SUNY Col of Env Sci & For	6,240	5,465	3,843	3,066	226	194	140	45
89 Kans St U - Ag & App Sci	6,186	4,651	3,914	3,993	1,921	1,429	872	777
90 Colorado School of Mines	6,097	3,069	3,726	3,693	2,576	1,622	2,375	2,272
Total, 1st 90 insts.	2,375,023	2,122,850	1,837,613	1,657,804	1,386,429	1,253,282	1,109,224	1,003,212
91 Washington State Univ	6,025	4,305	3,703	3,182	2,037	1,672	1,772	1,538
92 Wayne State University	5,951	4,700	3,625	3,635	2,121	1,740	1,352	1,166
93 University of Pittsburgh	5,944	6,201	5,498	5,908	2,967	2,910	2,590	3,185
94 George Washington Univ	5,898	6,039	5,460	4,798	4,715	4,766	4,558E	4,020
95 Ohio University	5,766	4,611	4,302	3,702	2,332	1,794	2,043	1,531
96 US Naval Postgrad School	5,575	4,419	3,931	3,791	5,575	4,407	3,906	3,766
97 Univ of Ill Chicago	5,486	5,939	4,940	4,496	2,335	2,247	1,588	1,879
98 Dartmouth College	5,401E	4,781	4,964	4,989	4,065I	3,670	3,429	3,536
99 Clarkson University	5,381	4,415	3,728	4,060	2,147	2,041	1,746	2,299
100 West Virginia University	5,381	6,894	6,153	5,383	3,264	3,211	2,755	2,316
Total, 1st 100 insts.	2,431,831	2,175,154	1,883,917	1,701,748	1,417,987	1,281,740	1,134,963	1,028,448
Total, all other sampled insts.	225,585	207,415	212,946	189,968	107,945	94,581	94,605	83,674
Estimated total non-sampled insts.	24,335	21,219	0	0	8,999	8,759	0	0

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

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Table B-48. R&D expenditures in engineering subfields at universities and colleges: Fiscal year 1990

[Dollars in thousands]

Institution ranking	Engineering subfields							
	Total	Aero/ astro- nautical	Chemical	Civil	Elec- trical	Mechan- ical	Metal- lurgical and materials	Other
Total, all institutions	2,681,751	159,885	206,172	289,746	664,610	393,238	275,925	692,175
1 Johns Hopkins Univ	204,793	20,455	4,580	2,524	63,082	41,889	880	71,383
2 Mass Inst of Technology	127,004	13,587	13,456	10,082	37,952	17,792	13,244	20,891
3 Pennsylvania State Univ	118,070	1,643	2,430	4,632	4,175	13,868	18,675	72,647
4 Georgia Institute of Tech	116,867	11,638	5,382	3,895	66,885	15,837	1,883	11,347
5 Stanford University	83,694I	5,906I	3,130I	3,997I	33,722I	10,787I	0I	26,152I
6 Univ of Ill Urbana	66,497	1,211	1,667	2,608	10,718	6,916	20,771	22,606
7 Texas A & M University	62,791	4,082	6,017	23,123	7,257	8,776	1,454	12,082
8 Univ of Texas at Austin	58,968	4,153	6,025	12,688	7,782	16,233	6,214	5,873
9 University of Michigan	53,905	2,671	2,668	5,990	19,111	7,707	3,932	11,826
10 Univ of Cal Berkeley	52,124	88	1,931	10,603	27,127	3,440	3,432	5,503
Total, 1st 10 insts.	944,713	65,434	47,286	85,142	277,811	145,245	66,485	257,310
11 VA Polytech Inst & St U	44,473	2,518	2,320	4,938	7,507	10,412	4,488	12,290
12 Univ of MD College Park	43,964	2,212	4,941	3,355	10,883	6,136	0	16,437
13 Ohio State University	43,810	1,182	873	1,335	6,587	4,014	2,968	26,851
14 Utah State University	40,694	0	0	2,902	35,720	922	0	1,150
15 N C State Univ at Raleigh	40,181	0	4,421	1,970	10,433	6,268	10,289	6,800
16 Univ of Wis-Madison	39,781	0	4,363	1,834	7,188	1,806	3,862	20,728
17 Cornell University	39,663	3,806	2,233	4,237	8,157	1,493	5,793	13,644
18 New Mexico State Univ	35,725I	25,984I	921	543I	8,225I	660I	0I	221I
19 Rensselaer Polytech Inst	33,993	0	2,017	2,732	9,764	8,542	6,353	4,585
20 Univ. Of Tennessee System	33,093	2,646	935	10,661	1,943	779	2,542	13,587
Total, 1st 20 insts.	1,340,090	103,782	69,481	119,949	384,218	186,277	102,780	373,603
21 Purdue University	32,466	1,704	2,081	3,751	6,113	6,534	1,658	10,625
22 University of Dayton	30,722	3,088	80	421	2,602	9,422	11,844	3,265
23 University of Florida	30,585	1,851	1,359	4,273	4,340	1,255	6,312	11,195
24 University of Minnesota	27,943	899	7,817	5,958	2,907	4,054	2,548	3,760
25 Univ of Southern Cal	27,713	2,916	768	1,324	11,953	531	1,282	8,939
26 Iowa St U of Sci & Tech	26,974	355	1,021	3,329	4,243	1,743	9,281	7,002
27 Univ of South Florida	24,961	0	215	2,272	22,134	203	0	137
28 Univ of Cal Los Angeles	24,213	0	1,264	1,673	8,469	7,430	2,882	2,495
29 Carnegie-Mellon Univ	24,000	0	1,453	1,487	8,615	1,568	3,717	7,160
30 SUNY at Buffalo	23,166	0	2,224	11,911	3,647	2,582	0	2,802
Total, 1st 30 insts.	1,612,833	114,595	87,763	156,348	459,241	221,599	142,304	430,983
31 Princeton University	23,048	10,318	2,981	3,723	5,811	0	0	215
32 University of Rochester	22,858	0	579	0	1,832	15,328	0	5,119
33 Univ of Cal Santa Barbara	22,214	0	2,280	0	8,048	1,432	7,044	3,410
34 Rutgers the St Univ of NJ	21,694	0	2,133	207	594	3,339	13,229	2,192
35 Louisiana State Univ	20,890	0	2,714	2,383	1,453	1,756	6,136	6,448
36 Univ. of Colorado	20,660	5,089	1,308	4,036	8,614	1,613	0	0
37 University of Connecticut	20,655	0	703	3,220	1,598	857	14,266	11
38 University of New Mexico	20,402	0	954	10,606	1,709	666	6,360	107
39 Lehigh University	19,596	0	3,067	4,809	2,391	3,571	4,858	900
40 Case Western Reserve Univ	19,049E	0E	3,665E	696E	3,944E	3,943E	3,817E	2,984E
Total, 1st 40 insts.	1,823,899	130,002	108,147	186,028	495,235	254,104	198,014	452,369
41 Auburn University	18,819	4,535	3,259	3,785	1,789	2,472	585	2,394
42 Arizona State University	18,618	14	2,644	2,073	6,133	3,569	0	4,185
43 University of Virginia	18,116	911	886	699	2,580	1,987	4,995	6,058
44 Columbia Univ Main Div	17,647	0	4,262	522	8,934	509	133	3,287
45 Northwestern University	17,407	0	1,486	2,312	1,030	942	3,842	7,795
46 California Inst of Tech	17,363	3,704	1,746	539	2,201	671	895	7,607
47 University of Washington	16,985	1,821	2,133	3,717	2,888	1,463	1,288	3,675
48 University of Utah	16,502	0	2,554	210	658	7,673	3,759	1,648
49 Clemson University	16,414	0	1,176	1,984	2,511	2,905	0	7,838
50 N Mex Inst Mining & Tech	16,090	0	2,259	0	0	0	2,988	10,843
Total, 1st 50 insts.	1,997,860	140,987	130,552	201,869	523,959	276,295	216,499	507,699

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-48. R&D expenditures in engineering subfields at universities and colleges: fiscal year 1990

[Dollars in thousands]

Institution ranking	Engineering subfields							
	Total	Aero/ astro- nautical	Chemical	Civil	Elec- trical	Mechan- ical	Metal- lurgical and materials	Other
51 Colorado State University	16,026	0	1,491	9,868	2,260	1,229	0	1,178
52 Oklahoma State University	15,639	155	4,028	3,408	834	2,201	0	5,013
53 Michigan State University	14,650	0	3	0	6	1,245	0	13,396
54 University of Arizona	14,220	1,674	343	1,036	3,159	0	3,883	4,125
55 University of Cincinnati	14,150	1,354	1,645	5,043	3,203	1,551	994	360
56 Drexel University	12,835	0	427	1,248	5,313	2,959	2,751	137
57 Mississippi State Univ	12,433	2,616	1,082	135	1,291	357	0	6,952
58 University of Delaware	12,251	0	3,826	947	2,578	185	3,920	795
59 University of Kentucky	12,172	0	378	227	91	986	0	10,490
60 Univ Alabama Huntsville	11,918	0	2,021	58	2,848	4,169	327	2,495
Total, 1st 60 insts.	2,134,154	146,786	145,796	223,839	545,542	291,177	228,374	552,640
61 Woods Hole Ocngrphic Inst	11,343	811I	854I	891I	2,854I	2,367I	0I	3,566I
62 Univ of Pennsylvania	10,832	0	1,696	604	2,302	1,308	3,532	1,390
63 Michigan Tech University	10,366	0	875	922	452	3,243	3,711	1,163
64 Univ of Missouri Columbia	9,738	0	644	505	601	927	0	7,061
65 Univ of Nebraska-Lincoln	9,709	0	345	1,001	1,574	1,531	0	5,258
66 University of Iowa	9,707	0	1,096	2,761	527	4,399	0	924
67 Univ of Massachusetts	9,239	0	1,743	1,138	3,479	2,010	0	869
68 Univ of Missouri Rolla	9,207	104	128	697	634	1,598	5,004	1,042
69 Texas Tech University	8,801	5	339	1,434	2,456	1,289	2,222	1,056
70 University of Oklahoma	8,735	0	1,594	2,143	1,412	1,452	0	2,134
Total, 1st 70 insts.	2,231,831	147,706	155,110	235,935	561,833	311,301	242,843	577,103
71 Oregon State University	8,459	0	31	4,604	1,048	1,180	0	1,596
72 University of N Dakota	8,271	0	61	0	1	30	0	8,179
73 U of Houston	8,027	0	2,870	1,247	1,363	1,648	0	899
74 Polytechnic University	7,864	208	1,241	101	5,731	100	358	125
75 Tenn Technological Univ	7,832	0	99	1,708	1,361	4,218	0	446
76 Univ of Cal Davis	7,794	0	928	1,476	2,036	2,253	0	1,101
77 Syracuse University	7,560	0	1,229	411	4,578	939	48	355
78 Univ of Cal San Diego	7,454	0	0	0	0	5,788	0	1,666
79 Vanderbilt University	7,287	0	266	1,054	2,031	540	3,118	278
80 Brown University	7,156	512I	534I	558I	1,781I	1,527I	0I	2,244I
Total, 1st 80 insts.	2,309,535	148,426	162,369	247,094	581,763	329,524	246,367	593,992
81 Univ of Ark Fayetteville	7,059	0	2,002	551	667	478	0	3,361
82 Univ of South Carolina	6,974	0	580	1,333	1,539	3,522	0	0
83 Yale University	6,732	0	1,734	0	1,431	1,653	0	1,914
84 University of Idaho	6,719	0	264	231	1,657	318	634	3,615
85 The University of Alabama	6,709	1,695	875	415	728	1,139	1,844	13
86 Duke University	6,492	0	0	671	884	1,169	0	3,768
87 Univ of Alaska Fairbanks	6,280	0	0	882	740	569	0	4,089
88 SUNY Col of Env Sci & For	6,240	0	1,209	92	0	0	0	4,939
89 Kans St U - Ag & App Sci	6,186	0	424	381	490	348	0	4,543
90 Colorado School of Mines	6,097	0	738	0	0	0	5,065	294
Total, 1st 90 insts.	2,375,023	150,121	170,195	251,650	589,899	338,720	253,910	620,528
91 Washington State Univ	6,025	0	538	968	1,571	1,178	94	1,676
92 Wayne State University	5,951	0	800	430	708	1,457	0	2,556
93 University of Pittsburgh	5,944	0	1,733	885	520	416	2,080	310
94 George Washington Univ	5,898	1,449	18	143	849	54	91	3,294
95 Ohio University	5,766	0	610	579	3,734	490	0	353
96 US Naval Postgrad School	5,575	1,750	0	0	1,966	1,577	219	63
97 Univ of Ill Chicago	5,486	0	593	1,098	1,874	1,362	0	559
98 Dartmouth College	5,401E	385I	406I	426I	1,343I	1,140I	0I	1,701I
99 Clarkson University	5,381	0	1,376	1,440	1,219	1,346	0	0
100 West Virginia University	5,381	0	713	1,361	528	1,808	463	425
Total, 1st 100 insts.	2,431,831	153,705	177,065	258,980	604,211	349,548	256,857	631,465
Total, all other sampled insts.	225,585	4,969	28,552	27,625	53,061	39,437	18,527	53,414
Estimated total non-sampled insts.	24,335	1,211	555	3,141	7,338	4,253	541	7,296

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

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Table B-49. Federally financed R&D expenditures in engineering subfields at universities and colleges: fiscal year 1990

[Dollars in thousands]

Institution ranking	Engineering subfields							
	Total	Aero/ astro- nautical	Chemical	Civil	Elec- trical	Mechan- ical	Metal- lurgical and materials	Other
Total, all institutions	1,534,931	123,477	99,937	119,250	430,589	238,464	143,822	379,394
1 Johns Hopkins Univ	200,964	20,254	4,171	1,329	62,696	41,681	505	70,328
2 Mass Inst of Technology	85,559	9,251	9,279	6,812	28,097	9,584	9,284	13,252
3 Pennsylvania State Univ	74,737	1,213	724	1,728	2,348	7,224	6,496	55,004
4 Stanford University	69,015	5,386	2,701	3,428	27,112	8,323	01	22,065
5 Georgia Institute of Tech	65,901	6,563	3,035	2,196	37,716	8,931	1,062	6,398
6 Univ of Ill Urbana	42,064	762	734	4,867	7,415	3,393	14,709	10,184
7 Utah State University	38,495	0	0	1,922	35,420	369	0	784
8 New Mexico State Univ	32,984	25,616	351	186	6,671	358	01	118
9 University of Michigan	31,447	1,618	1,686	2,852	12,683	4,112	2,831	5,665
10 Univ of Cal Berkeley	29,399	88	1,254	2,315	17,218	2,658	2,930	2,936
Total, 1st 10 insts.	670,565	70,751	23,619	27,635	237,376	86,633	37,817	186,734
11 Univ of Texas at Austin	26,031	2,380	2,388	2,653	2,649	12,255	1,247	2,459
12 Univ of Wis-Madison	24,474	0	2,407	328	4,463	721	2,499	14,056
13 University of Dayton	24,163	2,884	67	321	1,058	7,447	9,509	2,877
14 Cornell University	22,780	2,656	1,340	1,409	4,141	1,260	3,744	8,230
15 VA Polytech Inst & St U	22,304	1,826	878	1,199	2,924	5,838	2,587	7,052
16 Univ. Of Tennessee System	19,355	768	303	5,581	1,272	434	474	10,523
17 University of Rochester	19,203	0	238	0	1,508	13,955	0	3,502
18 Univ of South Florida	18,910	0	39	61	18,732	78	0	0
19 Univ of Cal Santa Barbara	18,807	0	1,764	0	6,503	1,158	6,383	2,999
20 Univ of Southern Cal	18,427	2,613	683	964	7,924	288	1,172	4,783
Total, 1st 20 insts.	885,019	83,878	33,726	40,151	288,550	130,067	65,432	243,215
21 Purdue University	18,301	1,280	1,143	1,654	4,248	3,114	1,332	5,530
22 Univ of Cal Los Angeles	16,873	0	770	1,040	5,985	6,310	1,381	1,387
23 Rensselaer Polytech Inst	16,370	0	971	1,316	4,702	4,114	3,059	2,208
24 Univ of MD College Park	16,336	845	1,577	583	5,566	2,069	0	5,696
25 California Inst of Tech	15,186	3,344	1,477	512	1,786	576	833	6,658
26 N C State Univ at Raleigh	15,077	0	1,764	596	4,495	3,121	3,986	1,115
27 University of Florida	14,766	1,077	1,164	231	2,221	593	4,252	5,228
28 Ohio State University	13,781	788	539	757	4,325	2,871	1,553	2,948
29 Univ. of Colorado	13,704	4,289	787	2,738	4,637	1,253	0	0
30 Texas A & M University	13,388	1,536	922	1,969	2,441	2,075	702	3,743
Total, 1st 30 insts.	1,038,801	97,037	44,840	51,547	328,956	156,163	82,530	277,728
31 Carnegie-Mellon Univ	13,040	0	985	957	3,555	1,259	2,688	3,596
32 Case Western Reserve Univ	12,638	0	2,004	534	3,027	3,243	2,725	2,105
33 Princeton University	11,931	6,686	1,281	1,260	2,697	0	0	7
34 Columbia Univ Main Div	11,777	0	2,265	396	5,984	384	11	2,737
35 Colorado State University	11,768	0	625	8,661	926	724	0	832
36 Iowa St U of Sci & Tech	11,496	291	214	1,406	787	791	6,131	1,876
37 University of Washington	11,359	1,572	1,020	1,762	1,535	1,182	844	3,444
38 University of Minnesota	10,781	674	5,249	1,267	1,623	1,344	214	410
39 University of New Mexico	10,689	0	128	7,633	245	171	2,512	0
40 Northwestern University	10,195	0	952	1,551	397	507	2,537	4,251
Total, 1st 40 insts.	1,154,475	106,260	59,563	76,974	348,732	165,768	100,192	296,986
41 University of Virginia	9,776	790	383	293	1,512	798	3,680	2,320
42 Woods Hole Ocngrphic Inst	9,714	6961	7561	7671	2,5341	1,8831	01	3,0781
43 Louisiana State Univ	8,345	0	872	191	74	484	5,600	1,124
44 Mississippi State Univ	8,199	687	424	59	1,021	232	0	5,776
45 Univ Alabama Huntsville	8,108	0	1,836	38	1,756	2,763	195	1,520
46 SUNY at Buffalo	7,900	0	1,139	5,191	737	679	0	154
47 University of Utah	7,872	0	1,120	56	179	3,423	2,279	815
48 Lehigh University	7,353	0	555	3,058	585	1,447	1,688	20
49 University of Arizona	6,989	1,301	150	508	577	0	1,881	2,572
50 Oklahoma State University	6,931	0	2,660	1,128	494	753	0	1,896
Total, 1st 50 insts.	1,235,662	109,734	69,458	88,263	358,201	178,230	115,515	316,261

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-49. Federally financed R&D expenditures in engineering subfields at universities and colleges: fiscal year 1990

(Dollars in thousands)

Institution ranking	Engineering subfields							
	Total	Aero/ astro- nautical	Chemical	Civil	Elec- trical	Mechan- ical	Metal- lurgical and materials	Other
51 University of Cincinnati	6,903	984	268	3,107	1,344	570	355	275
52 University of N Dakota	6,793	0	32	0	0	20	0	6,741
53 Univ of Pennsylvania	6,685	0	1,333	122	1,189	710	2,558	773
54 Brown University	5,704	409I	440I	451I	1,493I	1,106I	0I	1,805I
55 US Naval Postgrad School	5,575	1,750	0	0	1,966	1,577	219	63
56 Oregon State University	5,445	0	4	3,684	705	505	0	547
57 Univ of Cal San Diego	5,304	0	0	0	0	4,972	0	332
58 Polytechnic University	5,218	200	850	70	3,638	70	300	90
59 Vanderbilt University	5,018	0	15	560	771	442	3,006	224
60 Auburn University	5,017	2,572	935	116	352	923	117	2
Total, 1st 60 insts.	1,293,324	115,649	73,335	96,373	369,659	189,125	122,070	327,113
61 Arizona State University	4,933	0	614	339	2,010	1,812	0	158
62 Michigan State University	4,922	0	0	0	0	0	0	4,922
63 Duke University	4,899	0	0	381	455	906	0	3,157
64 Univ of Massachusetts	4,752	0	1,120	374	2,492	629	0	137
65 George Washington Univ	4,715	1,415	18	94	535	54	91	2,508
66 Clemson University	4,703	0	412	441	550	1,275	0	2,025
67 Yale University	4,652	0	1,463	0	748	1,243	0	1,198
68 University of Iowa	4,412	0	202	1,447	307	2,186	0	270
69 University of Delaware	4,305	0	1,140	361	1,355	18	1,431	0
70 Rutgers the St Univ of NJ	4,262	0	755	56	115	2,275	774	287
Total, 1st 70 insts.	1,339,879	117,064	79,059	99,866	378,226	199,523	124,366	341,775
71 Univ of Cal Davis	4,149	0	549	554	882	1,663	0	501
72 University of Idaho	4,101	0	62	70	1,282	121	320	2,246
73 Dartmouth College	4,065I	292I	314I	322I	1,061I	787I	0I	1,289I
74 Drexel University	4,005	0	13	448	1,909	886	634	115
75 University of Denver	3,842	0	294	0	1,715	1,833	0	0
76 Syracuse University	3,738	0	385	275	2,853	211	14	0
77 NC Ag & Tech State Univ	3,644	0	145	38	575	1,284	0	1,602
78 Old Dominion U Res Fdn	3,520	0	0	167	1,242	2,092	0	19
79 Michigan Tech University	3,490	0	236	174	111	1,657	1,013	299
80 Northeastern University	3,469	0	125	81	2,826	85	0	352
Total, 1st 80 insts.	1,377,902	117,356	81,182	101,995	392,682	210,142	126,347	348,198
81 University of Connecticut	3,450	0	59	107	795	163	2,326	0
82 San Diego State Univ	3,318	86	0	44	3,055	133	0	0
83 Brigham Young University	3,313	0	2,242	486	276	108	0	201
84 West Virginia University	3,264	0	505	606	453	1,135	352	213
85 Mercer University	3,259	943	159	0	897	853	0	407
86 University of Pittsburgh	2,967	0	760	319	377	315	1,175	21
87 The University of Alabama	2,871	1,388	257	0	258	405	554	9
88 University of Kentucky	2,821	0	276	140	17	711	0	1,677
89 Univ of Missouri Rolla	2,774	42	74	204	133	295	2,026	0
90 U of Houston	2,754	0	1,009	487	337	539	0	382
Total, 1st 90 insts.	1,408,693	119,815	86,523	104,388	399,280	214,799	132,780	351,108
91 Rice University	2,677	0	342	80	1,332	310	0	613
92 Texas Tech University	2,668	0	0	584	1,585	162	0	337
93 Univ of Alaska Fairbanks	2,662	0	0	239	201	154	0	2,068
94 Univ of Texas at El Paso	2,616	0	0	294	558	967	797	0
95 Univ of Cal Irvine	2,608	0	0	425	568	1,573	0	42
96 Colorado School of Mines	2,576	0	321	0	0	0	2,060	195
97 N Mex Inst Mining & Tech	2,519	0	408	0	0	0	885	1,226
98 University of Kansas	2,478	252	128	629	753	520	0	196
99 Boston University	2,476	71	0	0	862	158	0	1,385
100 Univ of Ill Chicago	2,335	0	340	595	721	679	0	0
Total, 1st 100 insts.	1,434,308	120,138	88,062	107,234	405,860	219,322	136,522	357,170
Total, all other sampled insts.	91,624	2,348	11,767	11,546	20,249	17,305	6,952	21,457
Estimated total non-sampled insts.	8,999	991	108	470	4,480	1,837	348	767

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-50. R&D expenditures in the physical sciences at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Institution ranking	Physical sciences total				1990 subfields			
	1990	1989	1988	1987	Astronomy	Chemistry	Physics	Other
Total, all institutions	1,781,108	1,640,754	1,544,962	1,389,007	165,464	649,432	834,258	131,953
1 Mass Inst of Technology	98,119	89,915	84,630	78,800	9,336	17,109	71,674	0
2 Johns Hopkins Univ	93,344	85,843	96,702	79,371	9,597	5,435	69,861	8,451
3 University of Arizona	61,723	49,968	46,661	40,538	23,065	5,034	18,532	15,092
4 Univ of MD College Park	56,256	46,904	42,756	40,906	0	10,977	29,200	16,079
5 Stanford University	53,844I	50,733	56,626	45,122E	0I	10,752I	6,492I	36,600I
6 Univ of Cal Berkeley	50,711	44,998	42,434	37,824	6,342	13,804	30,565	0
7 Cornell University	44,887	43,228	42,461	42,839	4,822	10,042	27,415	2,608
8 California Inst of Tech	42,034	39,377	37,695	37,648	8,665	10,667	22,702	0
9 Univ of Texas at Austin	40,985	35,845	33,590	32,807	8,717	13,259	19,009	0
10 Univ of Cal San Diego	30,989	24,540	25,144	23,740	13,146	8,120	9,377	346
Total, 1st 10 insts.	572,892	511,351	508,499	459,595	83,690	105,199	304,827	79,176
11 Univ of Wis-Madison	29,538	27,197	25,587	25,357	4,020	8,937	11,963	4,618
12 Harvard University	28,340	25,713	20,204	18,933	4,627	13,114	10,363	236
13 University of Chicago	26,088	24,329	22,059	21,747	3,208	9,331	13,189	360
14 Univ of Ill Urbana	23,258	23,307	22,034	21,775	1,330	9,243	12,685	0
15 Univ of Cal Los Angeles	23,136	21,764	20,776	20,937	1,137	11,217	10,782	0
16 Princeton University	22,819	20,191	19,273	17,889	2,744	9,099	10,976	0
17 Indiana University	22,532	22,059	21,388	18,579	429	7,344	14,759	0
18 Univ. of Colorado	21,438	21,124	18,240	17,109	8,062	6,041	7,151	184
19 Michigan State University	20,898	21,121	19,489	16,648	0	3,138	17,760	0
20 SUNY at Stony Brook	20,878	18,224	18,526	12,936	802	4,897	15,038	141
Total, 1st 20 insts.	811,817	736,380	716,075	651,505	110,049	187,560	429,493	84,715
21 U of Houston	19,290	16,033	9,771	8,224	0	4,724	11,149	3,417
22 Univ of Hawaii-Manoa	17,953	17,090	14,829	12,591	14,231	2,062	1,660	0
23 Texas A & M University	17,538	19,721	15,226	15,978	0	8,046	7,209	2,283
24 University of Iowa	17,498	13,114	11,449	10,402	1,275	4,294	11,476	453
25 Rutgers the St Univ of NJ	17,273	16,480	12,519	10,027	0	7,812	9,461	0
26 Pennsylvania State Univ	16,625	14,687	13,143	11,352	3,318	9,148	3,365	794
27 University of Minnesota	16,577	14,423	12,530	12,508	1,412	6,663	8,225	277
28 Columbia Univ Main Div	16,361	13,718	14,263	14,676	2,977	5,858	1,618	5,908
29 Univ of Pennsylvania	15,494	15,004	14,648	14,775	97	8,077	7,320	0
30 Yale University	15,391	15,059	15,585	13,315	1,090	6,037	8,264	0
Total, 1st 30 insts.	981,817	891,709	850,038	775,353	134,449	250,281	499,240	97,847
31 University of Washington	15,333	13,381	12,021	12,641	1,491	6,057	7,785	0
32 University of Michigan	15,329	15,747	15,729	15,156	435	3,735	9,818	1,341
33 Georgia Institute of Tech	15,314	20,753	15,205	7,955	316	5,215	9,783	0
34 Univ of Cal Santa Barbara	15,216	14,866	14,397	13,701	0	4,399	8,529	2,288
35 Arizona State University	14,490	12,340	10,408	8,090	215	7,967	3,043	3,265
36 Purdue University	14,467	13,665	13,695	11,882	0	8,672	5,795	0
37 Florida State University	13,839	13,089	9,324	9,141	0	5,345	8,494	0
38 Univ of Alaska Fairbanks	13,761	12,878	11,323E	6,352I	4,760	806	5,967	2,228
39 University of Rochester	13,329	11,307	10,806	10,953	587	6,537	6,205	0
40 Univ of Massachusetts	12,984	12,633	14,970	12,236	0	9,245	3,673	66
Total, 1st 40 insts.	1,125,879	1,032,368	977,916	883,460	142,253	308,259	568,332	107,035
41 University of Pittsburgh	12,904	10,952	9,998	10,524	613	5,832	5,139	1,320
42 Univ of Cal Santa Cruz	12,887	12,234	10,241	11,555	7,578	1,640	3,482	187
43 Ohio State University	12,802	12,222	12,524	10,089	309	6,225	6,268	0
44 Univ of Cal Irvine	12,300	11,425	10,846	10,188	19	4,835	7,317	129
45 University of Oregon	12,114	9,589	9,474	8,468	0	6,760	5,354	0
46 University of Florida	11,804	11,653	10,751	10,726	1,232	5,396	5,157	19
47 Northwestern University	11,770	11,884	10,174	9,087	0	7,219	4,541	10
48 Rockefeller University	11,661	9,518	9,433	9,013	0	9,248	2,413	0
49 University of Virginia	11,212	10,528	9,068	8,664	651	5,281	5,280	0
50 Univ Alabama Huntsville	11,024	9,193	8,381	4,306	0	4,317	6,527	180
Total, 1st 50 insts.	1,246,357	1,141,566	1,078,806	976,080	152,655	365,012	619,810	108,880

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-50. R&D expenditures in the physical sciences at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Institution ranking	Physical sciences total				1990 subfields			
	1990	1989	1988	1987	Astronomy	Chemistry	Physics	Other
51 University of Notre Dame	10,735	11,041	11,418	8,518	0	6,348	4,387	0
52 Case Western Reserve Univ	10,022E	10,164	9,789	8,715	0E	8,252E	1,770E	0E
53 Univ. Of Tennessee System	9,780	10,720	8,851	6,388	19	4,145	5,616	0
54 Va. Polytech Inst & St U	9,710	8,378	6,916	6,745	0	6,321	2,890	499
55 Louisiana State Univ	9,164	8,781	7,756	7,103	0	4,348	4,454	362
56 Duke University	9,085	7,864	5,942	5,979	0	2,974	6,111	0
57 Boston University	8,956	6,453	5,373	4,501	1,083	1,564	5,531	778
58 Rice University	8,470	7,449	6,964	7,185I	2,451	3,337	2,682	0
59 Univ of Ill Chicago	8,204	7,005	7,547	6,785	0	4,494	3,710	0
60 University of Utah	8,115	8,633	7,879	7,512	0	5,089	3,026	0
Total, 1st 60 insts.	1,338,598	1,228,054	1,157,241	1,045,511	156,208	411,884	659,987	110,519
61 Wayne State University	7,900	7,230	5,828	4,585	0	5,455	2,445	0
62 Univ of Cal Davis	7,851	7,346	6,741	5,685	0	3,582	4,269	0
63 Univ of Central Florida	7,693	5,234	165	114I	6,935	484	274	0
64 Univ of Southern Cal	7,463	6,107	5,549	4,748	102	5,667	1,694	0
65 Carnegie-Mellon Univ	7,203	7,169	7,122	5,959	0	3,239	3,338	626
66 SUNY at Buffalo	6,952	6,413	5,631	4,732	0	4,770	1,564	618
67 University of Delaware	6,869	6,397	5,844	3,390	0	2,381	1,321	3,167
68 University of Georgia	6,706	6,239	5,624	4,219	0	4,453	2,253	0
69 Vanderbilt University	6,681	6,067	5,984	5,169	0	1,462	5,219	0
70 University of Kansas	6,635	5,710	4,420	3,433	0	5,450	1,045	140
Total, 1st 70 insts.	1,410,551	1,292,966	1,208,149	1,087,545	163,245	448,827	683,409	115,070
71 Washington University	6,554	6,475	5,305	4,598	0	3,436	3,118	0
72 Univ of NC at Chapel Hill	6,481	6,508	5,782	4,738	0	5,310	1,171	0
73 Rensselaer Polytech Inst	6,263	5,826	5,067	3,302	0	4,639	1,624	0
74 Brown University	6,162	5,440	5,988	5,726	0	2,636	3,526	0
75 Syracuse University	5,968	5,039	4,860	4,647	0	2,861	2,986	121
76 Univ of South Carolina	5,710	6,376	6,273	6,196	0	4,307	1,261	142
77 Univ of New Hampshire	5,668	5,176	6,367	5,640	0	330	480	4,858
78 N C State Univ at Raleigh	5,611	5,488	4,557	4,000	0	1,103	3,989	519
79 CUNY City College	5,423	5,559	4,752	4,998	0	2,268	3,155	0
80 Iowa St U of Sci & Tech	5,396	4,276	3,224	4,631	69	3,851	1,476	0
Total, 1st 80 insts.	1,469,787	1,349,129	1,260,324	1,136,021	163,314	479,568	706,195	120,710
81 Univ of Texas at Dallas	5,314	5,738	5,678	6,172	0	906	4,408	0
82 Lehigh University	5,238	5,585	6,043	5,892	0	3,770	1,468	0
83 University of Oklahoma	5,030	5,276	5,615	5,319	0	3,287	1,743	0
84 Oklahoma State University	4,837	5,811	7,861	4,109	0	1,272	2,634	931
85 University of Akron	4,748	4,257	3,086	3,062	0	2,001	131	2,616
86 University of Cincinnati	4,669	5,643	4,859	4,711	0	3,605	1,064	0
87 Colorado State University	4,658	4,832	5,932	4,543	0	3,683	975	0
88 Univ of Nebraska-Lincoln	4,642	4,861	4,006	4,122	23	2,658	1,961	0
89 Emory University	4,631	4,038	3,257	2,726	0	4,228	403	0
90 Utah State University	4,431	5,662	6,050	2,971	0	1,222	3,209	0
Total, 1st 90 insts.	1,517,985	1,398,832	1,312,711	1,179,648	163,337	506,200	724,191	124,257
91 Montana State University	4,410	4,305	4,007	3,570I	0	2,178	2,030	202
92 Catholic Univ of America	4,305	3,972	3,662	3,420	0	667	3,638	0
93 UT MD Anderson Cancer Ctr	4,106	3,606	3,347	2,375	0	0	4,106	0
94 University of Mississippi	4,091	1,006	750	960	0	596	3,495	0
95 Univ of Cal Riverside	4,044	4,146	5,096	4,202	0	2,076	1,968	0
96 Georgetown University	3,998	4,201	3,125	2,854	0	3,860	65	73
97 University of Connecticut	3,937	3,975	8,525	6,728	0	3,022	1,642	273
98 The University of Alabama	3,910	5,625	5,148	5,152	438	1,195	1,272	5
99 Oregon Grad Inst Sci/Tech	3,784	3,235	3,927	3,239	0	2,300	1,484	0
100 Auburn University	3,778	1,713	1,533	1,267	0	2,280	1,498	0
Total, 1st 100 insts.	1,558,348	1,431,616	1,348,831	1,210,385	163,775	524,374	745,389	124,810
Total, all other sampled insts.	202,446	190,740	196,131	178,622	1,675	110,812	83,280	6,679
Estimated total non-sampled insts.	20,314	18,398	0	0	14	14,246	5,589	464

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-51. Federally financed R&D expenditures in the physical sciences at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Institution ranking	Physical sciences total				1990 subfields			
	1990	1989	1988	1987	Astronomy	Chemistry	Physics	Other
Total, all institutions	1,290,163	1,192,890	1,151,635	1,045,904	108,835	443,402	647,466	90,459
1 Johns Hopkins Univ	91,640	84,556	85,449	77,894	9,597	4,994	68,603	8,446
2 Mass Inst of Technology	82,688	74,896	72,927	69,502	3,578	15,129	63,981	0
3 Stanford University	48,995I	46,501	51,859	41,631	0I	9,355I	6,141I	33,499I
4 Univ of Cal Berkeley	42,182	37,355	36,851	32,782	3,204	12,219	26,759	0
5 California Inst of Tech	37,172	35,366	34,797	34,456	7,288	8,629	21,255	0
6 Cornell University	35,290	33,105	33,693	35,188	3,160	7,211	22,913	2,006
7 University of Arizona	32,929	23,882	24,717	20,659	13,730	3,210	8,254	7,735
8 Univ of MD College Park	30,835	25,029	23,542	23,055	0	4,774	14,512	11,549
9 Univ of Cal San Diego	26,689	21,204	21,923	19,937	10,473	7,422	8,531	263
10 Harvard University	24,954	22,932	19,334	18,058	4,627	11,855	8,236	236
Total, 1st 10 insts.	453,374	404,826	415,092	373,162	55,657	84,798	249,185	63,734
11 University of Chicago	23,941	22,261	20,069	19,659	2,835	8,524	12,577	5
12 Univ of Texas at Austin	22,478	20,081	20,050	19,030	4,117	6,723	11,638	0
13 Univ of Wis-Madison	22,378	20,691	19,774	18,372	3,346	6,041	10,397	2,594
14 Univ of Cal Los Angeles	21,485	19,521	17,988	19,296	1,077	10,216	10,192	0
15 Univ. of Colorado	18,187	17,416	15,270	13,997	6,645	5,218	6,148	176
16 Univ of Ill Urbana	17,960	18,085	16,893	16,859	691	6,563	10,706	0
17 Indiana University	17,818	18,212	18,192	15,255	271	5,225	12,322	0
18 Princeton University	16,288	15,037	14,636	14,563	1,827	6,104	8,357	0
19 Columbia Univ Main Div	15,497	13,152	13,699	14,409	2,974	5,540	1,618	5,365
20 SUNY at Stony Brook	15,165	12,660	12,740	10,129	659	3,816	10,690	0
Total, 1st 20 insts.	644,571	581,942	584,403	534,731	80,099	148,768	343,830	71,874
21 Univ of Pennsylvania	14,495	13,675	13,250	12,735	81	7,330	7,084	0
22 Michigan State University	14,485	14,203	13,627	10,786	0	1,992	12,493	0
23 University of Iowa	14,360	11,033	9,058	8,539	1,105	2,929	9,945	381
24 Yale University	13,814	13,283	13,887	11,957	802	5,256	7,756	0
25 Univ of Cal Santa Barbara	13,336	13,249	12,922	12,271	0	3,869	7,496	1,971
26 Univ of Hawaii-Manoa	12,905	12,878	11,329	9,576	9,759	1,583	1,563	0
27 University of Minnesota	12,563	11,064	9,265	9,991	1,231	5,857	5,475	0
28 University of Washington	12,548	11,169	9,911	9,663	864	4,139	7,545	0
29 University of Rochester	12,328	10,424	9,729	10,254	375	5,998	5,955	0
30 Pennsylvania State Univ	11,153	10,202	9,569	8,688	2,594	6,429	2,128	2
Total, 1st 30 insts.	776,558	703,122	696,950	639,191	96,910	194,150	411,270	74,228
31 Univ of Cal Irvine	11,110	10,613	10,482	9,888	0	4,437	6,642	31
32 University of Michigan	10,987	11,186	12,214	12,055	382	2,786	7,401	418
33 Purdue University	10,897	10,536	10,776	9,610	0	6,893	4,004	0
34 University of Pittsburgh	10,141	8,547	8,678	8,003	460	4,721	3,802	1,158
35 Rutgers the St Univ of NJ	9,765	10,164	6,157	5,473	0	6,016	3,749	0
36 U of Houston	9,692	7,928	5,480	3,773	0	1,934	7,758	0
37 Northwestern University	9,357	9,029	7,902	7,273	0	5,465	3,892	0
38 Univ Alabama Huntsville	9,339	7,282	5,381	2,941	0	3,880	5,294	165
39 University of Notre Dame	8,904	9,376	10,341	7,597	0	5,667	3,237	0
40 University of Oregon	8,895	7,244	7,444	6,525	0	5,182	3,713	0
Total, 1st 40 insts.	875,645	795,027	781,805	712,329	97,752	241,131	460,762	76,000
41 Georgia Institute of Tech	8,635	11,650	8,001	4,173	178	2,941	5,516	0
42 Univ of Massachusetts	8,432	8,275	10,682	8,642	0	5,494	2,938	0
43 Boston University	8,314	6,179	5,018	4,356	1,000	1,343	5,193	778
44 University of Virginia	8,134	7,722	6,847	6,320	541	4,038	3,555	0
45 Ohio State University	8,063	8,188	8,896	7,756	228	4,085	3,750	0
46 Texas A & M University	8,021	8,863	8,482	7,003	0	3,716	4,106	199
47 Univ of Alaska Fairbanks	7,950	7,298	6,417E	3,568I	2,471	213	3,593	1,673
48 Duke University	7,344	6,555	4,789	4,920	0	1,677	5,667	0
49 University of Florida	7,068	6,539	6,717	6,124	955	2,905	3,208	0
50 Univ of Southern Cal	7,039	5,587	5,218	4,297	65	5,358	1,616	0
Total, 1st 50 insts.	954,645	871,883	852,872	769,488	103,190	272,901	499,904	78,650

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-51. Federally financed R&D expenditures in the physical sciences at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Institution ranking	Physical sciences total				1990 subfields			
	1990	1989	1988	1987	Astronomy	Chemistry	Physics	Other
51 Univ of Cal Davis	6,909	6,603	5,522	4,763	0	2,996	3,913	0
52 Florida State University	6,799	5,319	4,018	4,150	0	1,320	5,479	0
53 Arizona State University	6,697	7,169	5,752	4,336	12	3,626	2,196	863
54 Rice University	6,640	5,839	5,382	5,6051	2,151	2,330	2,159	0
55 Univ. Of Tennessee System	6,408	6,292	4,938	3,934	0	2,441	3,967	0
56 University of Utah	6,099	6,124	6,180	6,344	0	3,746	2,353	0
57 Vanderbilt University	6,068	6,022	4,446	3,845	0	1,138	4,930	0
58 Carnegie-Mellon Univ	5,944	6,015	6,104	4,878	0	2,770	3,079	95
59 Univ of Cal Santa Cruz	5,810	5,694	5,066	4,949	1,220	1,398	3,042	150
60 Case Western Reserve Univ	5,807	6,932	7,076	6,396	0	4,246	1,561	0
Total, 1st 60 insts.	1,017,826	933,892	907,356	818,688	106,573	298,912	532,583	79,758
61 Univ of Ill Chicago	5,607	4,880	5,144	4,853	0	2,930	2,677	0
62 Univ of NC at Chapel Hill	5,400	5,479	5,071	3,880	0	4,651	749	0
63 Rockefeller University	5,365	4,477	3,840	4,023	0	4,331	1,034	0
64 Brown University	5,355	4,817	5,579	5,256	0	2,254	3,101	0
65 Washington University	5,231	5,625	4,229	3,746	0	2,759	2,472	0
66 Louisiana State Univ	4,912	4,744	4,308	4,437	0	1,887	2,906	119
67 CUNY City College	4,905	5,001	4,171	4,729	0	2,198	2,707	0
68 Univ of New Hampshire	4,738	4,497	5,732	5,131	0	284	480	3,974
69 VA Polytech Inst & St U	4,648	4,064	3,962	4,223	0	2,522	1,872	254
70 University of Delaware	4,325	3,758	2,369	1,970	0	1,472	920	1,933
Total, 1st 70 insts.	1,068,312	981,234	951,761	860,936	106,573	324,200	551,501	86,038
71 Syracuse University	4,204	3,312	3,258	3,280	0	1,945	2,141	118
72 SUNY at Buffalo	4,129	3,681	3,420	3,349	0	2,955	776	398
73 Univ of South Carolina	3,936	3,674	3,803	3,904	0	2,992	837	107
74 Catholic Univ of America	3,906	3,640	3,444	3,366	0	625	3,281	0
75 Emory University	3,872	3,135	2,829	2,473	0	3,509	363	0
76 Univ of Cal Riverside	3,848	3,866	4,638	3,850	0	1,890	1,958	0
77 N C State Univ at Raleigh	3,797	2,616	2,220	2,614	0	630	2,900	267
78 Colorado State University	3,735	3,983	5,182	4,043	0	2,998	737	0
79 Univ of Texas at Dallas	3,718	4,343	3,691	4,606	0	802	2,916	0
80 University of Mississippi	3,642	845	710	829	0	560	3,082	0
Total, 1st 80 insts.	1,107,099	1,014,329	984,956	893,250	106,573	343,106	570,492	86,928
81 Georgetown University	3,212	3,322	2,286	2,254	0	3,088	61	63
82 Utah State University	3,039	3,652	4,676	5,215	0	368	2,671	0
83 Rensselaer Polytech Inst	3,016	3,995	2,542	1,863	0	2,234	782	0
84 Univ of Nebraska-Lincoln	3,008	3,506	3,227	3,005	18	1,925	1,065	0
85 University of Cincinnati	3,007	3,301	2,628	2,910	0	2,151	856	0
86 Howard University	2,9531	2,7461	2,5381	2,329	01	2,8111	1421	01
87 Univ of Sthrn Mississippi	2,880	2,300	1,307	1,252	0	2,850	30	0
88 Kans St U - Ag & App Sci	2,857	3,297	3,220	3,068	0	937	1,920	0
89 Oregon Grad Inst Sci/Tech	2,811	2,410	3,286	2,404	0	2,004	807	0
90 University of Kansas	2,788	2,457	1,548	1,524	0	2,099	689	0
Total, 1st 90 insts.	1,136,670	1,045,313	1,012,214	916,074	106,591	363,573	579,515	86,991
91 New York University	2,745	2,784	2,778	2,683	0	1,397	1,348	0
92 Lehigh University	2,744	2,802	2,861	2,822	0	1,745	999	0
93 Alabama A & M University	2,716	1,984	1,062	2,199	0	62	2,592	62
94 Boston College	2,649	2,207	2,189	1,649	0	1,856	793	0
95 Brandeis University	2,616	2,733	2,871	2,6031	0	1,410	1,206	0
96 University of Georgia	2,492	2,654	2,240	1,645	0	1,651	841	0
97 Oklahoma State University	2,485	2,315	2,142	2,128	0	631	1,082	772
98 US Naval Postgrad School	2,443	2,265	2,326	1,774	0	0	2,443	0
99 University of Denver	2,417	2,246	1,029	2,398	0	898	1,519	0
100 Dartmouth College	2,3861	2,155	2,098	2,024	01	1,1551	1,2311	01
Total, 1st 100 insts.	1,162,363	1,069,458	1,033,810	937,999	106,591	374,378	593,569	87,825
Total, all other sampled insts.	117,357	113,519	117,825	107,905	2,244	61,904	50,575	2,634
Estimated total non-sampled insts.	10,443	9,913	0	0	0	7,120	3,322	0

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-52. Total and federally financed R&D expenditures in chemistry at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1990	1989	1988	1987	1990	1989	1988	1987
Total, all institutions	649,432	608,029	565,293	513,116	443,402	421,712	402,724	367,765
1 Mass Inst of Technology	17,109	15,031	13,287	11,471	15,129	13,333	11,987	10,656
2 Univ of Cal Berkeley	13,804	12,663	14,285	12,490	12,219	11,540	12,998	11,160
3 Univ of Texas at Austin	13,259	11,484	10,943	11,420	6,723	6,120	6,443	6,405
4 Harvard University	13,114	11,856	9,886	8,895	11,855	10,594	9,272	8,309
5 Univ of Cal Los Angeles	11,217	9,855	9,519	10,099	10,216	9,024	8,885	9,414
6 Univ of MD College Park	10,977	9,732	8,545	9,258	4,774	3,844	3,793	4,073
7 Stanford University	10,752[1]	10,098	10,547	8,916	9,355[1]	8,878	9,423	7,918
8 California Inst of Tech	10,667	9,235	9,931	10,870	8,629	7,459	8,769	9,922
9 Cornell University	10,042	10,217	10,472	8,397	7,211	7,458	8,269	6,793
10 University of Chicago	9,331	9,333	8,046	7,514	8,524	8,621	7,235	6,499
Total, 1st 10 insts.	120,272	109,504	105,461	99,330	94,635	86,871	87,074	81,109
11 Rockefeller University	9,248	7,471	6,975	6,823	4,331	3,713	3,082	3,247
12 Univ of Massachusetts	9,245	2,988	5,280	7,589	5,494	1,326	3,296	5,036
13 Univ of Ill Urbana	9,243	9,208	8,647	9,035	6,563	6,566	6,193	6,306
14 Pennsylvania State Univ	9,148	8,616	7,739	6,072	6,429	6,515	5,957	4,915
15 Princeton University	9,099	8,873	8,087	6,477	6,104	5,681	5,812	5,064
16 Univ of Wis-Madison	8,937	8,326	7,282	6,984	6,041	5,505	4,939	4,718
17 Purdue University	8,672	8,769	8,615	7,092	6,893	7,102	7,120	5,978
18 Case Western Reserve Univ	8,252E	8,233	7,996	7,164	4,246	5,161	5,433	5,016
19 Univ of Cal San Diego	8,120	6,487	6,780	5,179	7,422	5,757	6,161	4,599
20 Univ of Pennsylvania	8,077	7,760	7,292	6,741	7,330	7,046	6,337	5,653
Total, 1st 20 insts.	208,313	186,235	180,154	168,486	155,488	141,243	141,404	131,641
21 Texas A & M University	8,046	9,808	8,785	7,462	3,716	4,408	4,945	4,019
22 Arizona State University	7,967	5,260	4,306	3,586	3,626	3,172	2,813	2,317
23 Rutgers the St Univ of NJ	7,812	7,905	5,926	3,913	6,016	6,572	3,442	2,525
24 Indiana University	7,344	7,927	7,991	6,181	5,225	6,127	6,354	4,923
25 Northwestern University	7,219	7,661	6,644	6,095	5,465	5,577	4,955	4,641
26 University of Oregon	6,760	5,501	5,550	4,462	2,182	4,435	4,519	3,579
27 University of Minnesota	6,663	5,863	5,232	4,426	2,857	5,054	4,156	4,395
28 University of Rochester	6,537	4,762	4,437	3,545	5,998	4,327	3,936	3,275
29 University of Notre Dame	6,348	6,660	7,004	5,550	5,667	5,983	6,557	5,158
30 VA Polytech Inst & St U	6,321	5,155	4,735	4,190	2,522	2,194	2,417	2,290
Total, 1st 30 insts.	279,330	252,737	240,764	218,896	204,762	189,092	185,498	168,763
31 Ohio State University	6,225	6,771	7,568	5,755	4,085	4,445	5,437	4,517
32 University of Washington	6,057	5,192	4,338	3,655	4,139	3,756	2,904	2,287
33 Univ. of Colorado	6,041	6,587	5,637	5,118	5,218	5,418	4,603	4,402
34 Yale University	6,037	5,915	6,869	5,538	5,256	5,011	5,927	4,909
35 Columbia Univ Main Div	5,858	4,721E	4,605E	6,715	5,540	4,344E	4,246E	6,625
36 University of Pittsburgh	5,832	5,736	5,598	5,105	4,721	4,558	4,803	4,028
37 Univ of Southern Cal	5,667	4,374	3,832	3,311	5,358	3,986	3,568	2,903
38 Wayne State University	5,455	5,557	4,582	3,278	1,798	2,989	2,151	1,770
39 University of Kansas	5,450	4,952	3,845	2,803	2,099	2,030	1,239	1,142
40 Johns Hopkins Univ	5,435	5,152	5,211	5,593	4,994	4,824	4,830	5,116
Total, 1st 40 insts.	337,387	307,694	292,849	265,767	247,970	230,453	225,206	206,462
41 University of Florida	5,396	5,061	5,030	5,690	2,905	2,820	3,168	3,486
42 Florida State University	5,345	5,382	4,308	3,841	1,320	1,997	1,402	1,344
43 Univ of NC at Chapel Hill	5,310	5,171	4,476	3,471	4,651	4,534	4,193	3,153
44 University of Virginia	5,281	5,096	4,153	4,169	4,038	4,165	3,419	3,281
45 Georgia Institute of Tech	5,215	5,380	5,989	4,889	2,941	3,020	3,574	2,565
46 University of Utah	5,089	5,653	4,600	4,846	3,746	3,872	3,614	4,194
47 University of Arizona	5,034	4,532	3,934	3,441	3,210	3,044	2,885	2,499
48 SUNY at Stony Brook	4,897	4,754	5,010	3,669	3,816	3,610	3,460	2,930
49 Univ of Cal Irvine	4,835	3,910	4,534	3,541	4,437	3,685	4,376	3,386
50 SUNY at Buffalo	4,770	4,644	3,903	3,370	2,955	2,782	2,329	2,320
Total, 1st 50 insts.	388,559	357,277	338,786	306,694	281,989	263,982	257,626	235,620

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-52. Total and federally financed R&D expenditures in chemistry at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1990	1989	1988	1987	1990	1989	1988	1987
51 U of Houston	4,724	4,908	3,693	4,003	1,934	2,118	1,983	1,756
52 Rensselaer Polytech Inst	4,639	4,198	3,737	3,511	2,334	2,915	1,875	1,417
53 Univ of Ill Chicago	4,494	3,721	3,020	3,663	2,530	2,612	1,915	1,735
54 University of Georgia	4,453	4,091	3,531	2,239	1,651	1,866	1,403	1,081
55 Univ of Cal Santa Barbara	4,399	3,714	3,539	3,874	3,869	3,242	3,196	3,526
56 Louisiana State Univ	4,348	4,698	3,834	3,446	1,887	2,264	1,769	1,951
57 Univ Alabama Huntsville	4,317	2,972	1,493	1,396	3,880	2,414	1,059	781E
58 Univ of South Carolina	4,307	4,466	4,078	4,622	2,992	2,905	2,839	3,113
59 University of Iowa	4,294	3,277	2,482	2,613	2,929	2,364	1,718	1,846
60 Emory University	4,228	3,581	2,770	2,333	3,509	2,719	2,362	2,093
Total, 1st 60 insts.	432,762	396,903	370,963	336,394	309,804	289,401	277,745	254,919
61 Univ. Of Tennessee System	4,145	4,960	3,962	2,611	2,441	2,985	2,093	1,737
62 Georgetown University	3,860	3,904	2,878	2,735	3,088	3,113	2,148	2,155
63 Iowa St U of Sci & Tech	3,851	2,910	2,094	3,684	1,331	1,004	956	1,595
64 Lehigh University	3,770	3,959	4,510	4,410	1,745	1,817	1,921	1,868
65 University of Michigan	3,735	3,788	3,879	3,276	2,786	3,022	3,310	2,615
66 Colorado State University	3,683	4,204	4,950	3,713	2,998	3,457	4,280	3,273
67 University of Cincinnati	3,605	4,655	4,008	3,816	2,151	2,755	2,088	2,403
68 Univ of Cal Davis	3,582	3,693	2,550	2,327	2,996	3,386	2,255	1,980
69 Howard University	3,513I	3,424I	3,333I	3,240E	2,811I	2,614I	2,416I	2,216
70 Washington University	3,436	3,741	2,940	2,314	2,759	3,088	2,291	1,759
Total, 1st 70 insts.	469,942	436,141	406,067	368,520	334,910	316,642	301,503	276,520
71 Rice University	3,337	3,144	2,675	2,618I	2,330	2,133	1,636	1,628I
72 University of Oklahoma	3,287	3,968	3,765	3,633	1,221	1,775	1,740	1,573
73 Univ of Sthrn Mississippi	3,266	2,807	1,691	1,847	2,850	2,285	1,198	1,250
74 Carnegie-Mellon Univ	3,239	3,854	3,932	3,059	2,770	2,917	3,001	2,055
75 Michigan State University	3,138	3,602	2,690	2,511	1,992	2,363	1,833	1,583
76 Duke University	2,974	2,458	2,631	2,830	1,677	1,573	1,828	2,151
77 Syracuse University	2,861	2,313	2,159	2,281	1,945	1,602	1,602	1,746
78 Univ of Nebraska-Lincoln	2,658	2,882	2,393	2,432	1,925	2,392	1,939	1,734
79 Oregon State University	2,647	2,565	2,461	2,378	1,472	1,794	1,539	1,620
80 Brown University	2,636	2,546	2,505	2,468	2,254	2,228	2,416	2,363
Total, 1st 80 insts.	499,985	467,280	433,969	394,577	355,346	337,704	320,235	294,223
81 University of Delaware	2,381	2,795	2,781	2,766	1,472	1,747	1,921	1,672
82 Texas Tech University	2,335	2,067	1,693	2,189	586	618	581	1,181
83 CUNY Hunter College	2,307	2,018	1,534	2,219	1,668	1,507	1,208	1,590
84 Oregon Grad Inst Sci/Tech	2,300	1,995	1,766	1,340	2,004	1,700	1,540	1,176
85 Boston College	2,291	1,688	1,577	866	1,856	1,617	1,526	827
86 Auburn University	2,280	740	617	481	361	515	363	257
87 CUNY City College	2,268	2,055	1,624	1,142	2,198	1,959	1,535	1,092
88 The University of Alabama	2,195	2,039	1,675	1,701	1,386	1,431	1,147	1,339
89 Montana State University	2,178	2,176	2,221	1,954I	790	1,390	1,572	1,317I
90 Univ of Ark Fayetteville	2,110	1,980	2,373	1,953	948	835	1,007	925
Total, 1st 90 insts.	522,630	486,833	451,830	411,188	368,615	351,023	332,635	305,599
91 Univ of Cal Riverside	2,076	2,297	3,233	2,126	1,890	2,040	2,844	1,881
92 Univ of Hawaii-Manoa	2,062	2,316	1,606	1,425	1,583	1,990	1,431	1,367
93 Polytechnic University	2,027	2,739	2,462	1,331	950	600	1,705	1,086
94 University of Connecticut	2,022	1,985	4,279	3,396	702	695	1,098	872
95 University of Akron	2,001	1,815	949	1,184	769	201	273	291
96 Brandeis University	1,923	2,197	2,201	1,958I	1,410	1,552	1,850	1,419I
97 Clemson University	1,857	1,467	1,409	1,516	503	359	435	411
98 Brigham Young University	1,855	2,320I	2,062	1,729	552	611I	722	577
99 New York University	1,693	1,382	1,163	908	1,397	1,288	1,062	819
100 Clarkson University	1,680	965	1,108	895	893	507	707	725
Total, 1st 100 insts.	541,826	506,316	472,302	427,656	379,264	360,866	344,762	315,047
Total, all other sampled insts.	93,360	88,752	92,991	85,460	57,018	53,983	57,962	52,718
Estimated total non-sampled insts.	14,246	12,961	0	0	7,120	6,863	0	0

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-53. Total and federally financed R&D expenditures in physics at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1990	1989	1988	1987	1990	1989	1988	1987
Total, all institutions	834,258	773,673	730,435	664,619	647,466	598,065	573,726	529,730
1 Mass Inst of Technology	71,674	66,183	63,475	59,225	63,981	57,879	57,771	55,589
2 Johns Hopkins Univ	69,861	68,645	78,741	61,936	68,603	67,707	77,885	60,947
3 Univ of Cal Berkeley	30,565	26,457	24,249	21,463	26,759	22,874	21,167	18,860
4 Univ of MD College Park	29,200	25,257	22,126	22,351	14,512	13,007	12,089	12,771
5 Cornell University	27,415	25,895	25,283	20,046	22,913	21,071	20,340	24,525
6 California Inst of Tech	22,702	22,541	20,115	22,568	21,255	21,007	18,861	20,506
7 Univ of Texas at Austin	19,009	16,047	15,190	14,444	11,638	9,995	9,898	9,991
8 University of Arizona	18,532	17,873	18,547	17,399	8,254	7,582	9,264	8,209
9 Michigan State University	17,760	17,516	16,799	14,133	12,493	11,840	11,794	9,203
10 SUNY at Stony Brook	15,038	12,681	12,571	8,602	10,690	8,602	8,681	6,733
Total, 1st 10 insts.	321,756	299,095	297,096	271,167	261,098	241,564	247,750	226,234
11 Indiana University	14,759	13,580	12,985	12,078	12,322	11,678	11,514	10,043
12 University of Chicago	13,189	11,868	8,079	7,525	12,577	11,302	7,886	7,222
13 Univ of Ill Urbana	12,685	12,655	11,983	11,930	10,706	10,733	10,022	9,930
14 Univ of Wis-Madison	11,963	11,459	11,408	11,141	10,397	9,934	9,777	9,414
15 University of Iowa	11,476	8,851	8,054	6,801	9,945	7,802	6,606	6,024
16 U of Houston	11,149	10,973	6,064	4,097	7,758	5,810	3,494	3,017
17 Princeton University	10,976	9,080	8,733	9,022	8,357	7,391	7,104	7,733
18 Univ of Cal Los Angeles	10,782	10,826	10,164	9,719	10,192	9,570	8,162	8,888
19 Harvard University	10,363	9,169	7,356	7,316	8,236	7,664	7,107	7,089
20 University of Michigan	9,818	9,928	9,846	9,088	7,401	7,597	8,218	8,002
Total, 1st 20 insts.	438,916	407,484	391,768	359,884	358,989	331,245	327,640	302,636
21 Georgia Institute of Tech	9,783	13,781	7,676	3,066	5,516	7,736	3,508	1,608
22 Rutgers the St Univ of NJ	9,461	8,575	6,593	6,114	3,749	3,592	2,715	2,948
23 Univ of Cal San Diego	9,377	7,904	6,630	6,276	8,531	7,135	5,982	5,825
24 Univ of Cal Santa Barbara	8,529	8,779	7,548	6,970	7,496	7,797	6,575	6,045
25 Florida State University	8,494	7,707	5,016	5,300	5,479	3,322	2,616	2,806
26 Yale University	8,264	8,238	8,079	6,987	7,756	7,510	7,521	6,456
27 University of Minnesota	8,525	7,036	5,897	6,354	5,475	5,009	4,622	4,982
28 University of Washington	7,785	6,971	6,427	7,055	7,545	6,605	6,312	6,771
29 Univ of Pennsylvania	7,320	7,149	7,081	7,923	7,084	6,553	6,643	6,971
30 Univ of Cal Irvine	7,317	7,379	6,228	6,552	6,642	6,912	6,090	6,450
Total, 1st 30 insts.	523,471	491,003	458,943	422,481	424,262	393,416	379,824	353,498
31 Texas A & M University	7,209	7,098	5,208	7,268	4,106	3,947	3,344	2,921
32 Univ. of Colorado	7,151	6,970	6,082	5,657	6,148	5,969	5,344	4,723
33 Univ Alabama Huntsville	6,527	6,218	6,231	2,781	5,294	4,868	3,770	2,117
34 Stanford University	6,492I	6,135	7,221	5,537	6,141I	5,829	6,802	5,244
35 Ohio State University	6,268	5,225	4,874	4,239	3,750	3,633	3,385	3,161
36 University of Rochester	6,205	6,131	5,997	6,968	5,955	5,845	5,562	6,734
37 Duke University	6,111	5,406	3,311	3,149	5,667	4,982	2,961	2,769
38 Univ of Alaska Fairbanks	5,967	6,258	5,502E	3,102I	3,593	3,781	3,325E	1,855I
39 Purdue University	5,795	4,896	5,080	4,790	4,004	3,434	3,656	3,632
40 Univ. Of Tennessee System	5,616	5,741	4,889	3,777	3,967	3,305	2,845	2,197
Total, 1st 40 insts.	586,812	551,081	513,338	469,749	472,887	439,009	420,718	388,851
41 Boston University	5,531	3,573	2,822	2,114	5,193	3,475	2,675	2,030
42 University of Oregon	5,354	4,088	3,924	4,006	3,713	2,809	2,925	2,946
43 University of Virginia	5,280	4,908	4,518	4,019	3,555	3,146	3,115	2,699
44 Vanderbilt University	5,219	5,837	4,395	4,055	4,930	5,102	3,283	3,030
45 University of Florida	5,157	4,720	4,121	3,123	3,208	3,236	2,572	1,753
46 University of Pittsburgh	5,139	3,891	3,506	4,312	3,802	2,955	3,133	3,074
47 Northwestern University	4,541	4,208	3,522	2,992	3,892	3,452	2,947	2,632
48 Louisiana State Univ	4,454	3,769	3,488	3,403	2,906	2,477	2,527	2,482
49 Univ of Texas at Dallas	4,408	4,616	4,585	5,098	2,916	3,784	2,980	3,805
50 University of Notre Dame	4,387	4,381	4,414	2,968	3,237	3,393	3,784	2,439
Total, 1st 50 insts.	636,282	595,072	552,633	505,839	510,239	472,838	450,659	415,741

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-53. Total and federally financed R&D expenditures in physics at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1990	1989	1988	1987	1990	1989	1988	1987
51 Univ of Cal Davis	4,269	3,653	4,191	3,358	3,913	3,217	3,267	2,783
52 UT MD Anderson Cancer Ctr	4,106	3,606	3,347	2,375	1,860	2,103	2,137	1,561
53 N C State Univ at Raleigh	3,989	3,748	3,198	2,638	2,900	1,996	1,850	2,105
54 Univ of Ill Chicago	3,710	3,284	4,527	4,122	2,677	2,268	3,229	3,118
55 Univ of Massachusetts	3,673	3,734	3,779	3,300	2,938	2,658	2,992	2,458
56 Catholic Univ of America	3,638	3,231	3,263	3,025	3,281	2,908	3,055	2,986
57 Brown University	3,526	2,894	3,483	3,258	3,101	2,589	3,163	2,803
58 University of Mississippi	3,495	506	490	517	3,082	405	469	447
59 Univ of Cal Santa Cruz	3,482	3,447	3,001	2,924	3,042	3,056	2,661	2,659
60 Pennsylvania State Univ	3,365	2,679	1,878	1,959	2,128	1,830	1,517	1,701
Total, 1st 60 insts.	673,535	625,854	583,790	533,315	539,161	495,868	474,979	438,452
61 Carnegie-Mellon Univ	3,338	3,201	3,058	2,759	3,079	3,033	2,976	2,684
62 Utah State University	3,209	3,283	4,124	1,751	2,671	2,814	3,697	1,476
63 CUNY City College	3,155	3,504	3,128	3,856	2,707	3,042	2,636	3,637
64 Washington University	3,118	2,734	2,365	2,284	2,472	2,537	1,938	1,987
65 Alabama A & M University	3,094	2,390	939	1,991	2,592	1,939	815	1,991
66 Arizona State University	3,043	2,995	2,848	1,906	2,196	2,289	1,718	841
67 University of Utah	3,026	2,980	3,279	2,666	2,353	2,225	2,566	2,150
68 Syracuse University	2,986	2,599	2,491	2,075	2,141	1,991	1,452	1,294
69 VA Polytech Inst & St U	2,890	2,586	2,181	2,555	1,872	1,674	1,545	1,933
70 Rice University	2,682	1,953	2,013	1,9011	2,159	1,583	1,689	1,6921
Total, 1st 70 insts.	704,076	654,079	610,216	557,059	563,403	518,622	496,011	458,137
71 Oklahoma State University	2,634	1,875	2,623	2,226	1,082	1,183	1,012	1,095
72 US Naval Postgrad School	2,477	2,261	2,168	1,266	2,443	2,204	2,168	1,266
73 Wayne State University	2,445	1,673	1,246	1,307	506	594	529	567
74 College of William & Mary	2,442	1,642	1,696	1,542	1,805	1,500	1,553	1,416
75 Rockefeller University	2,413	2,047	2,458	2,190	1,034	764	758	776
76 University of Georgia	2,253	2,148	2,093	1,980	841	788	837	564
77 Temple University	2,133	2,050	1,802	1,183	1,021	733	523	949
78 Kans St U - Ag & App Sci	2,096	2,485	2,647	1,750	1,920	2,271	2,147	1,428
79 Florida A & M University	2,080	251	200	225	1,929	251	200	225
80 Northeastern University	2,080	2,250	1,965	1,876	1,726	1,962	1,748	1,735
Total, 1st 80 insts.	727,129	672,761	629,114	572,604	577,710	530,872	507,486	468,158
81 Montana State University	2,030	2,129	1,786	1,6161	1,085	1,280	625	7371
82 Univ of Cal Riverside	1,968	1,849	1,863	2,076	1,958	1,826	1,794	1,969
83 Univ of Nebraska-Lincoln	1,961	1,901	1,545	1,545	1,065	1,068	1,232	1,128
84 University of Denver	1,853	1,575	1,644	1,903	1,519	1,400	743	1,643
85 Case Western Reserve Univ	1,770E	1,706	1,557	1,340	1,561	1,546	1,421	1,182
86 University of Oklahoma	1,743	1,308	1,850	1,686	515	443	574	445
87 University of New Mexico	1,724	1,932	1,734	1,423	1,258	1,369	1,307	947
88 Clemson University	1,710	1,385	1,464	1,289	536	363	316	181
89 Univ of Southern Cal	1,694	1,612	1,646	1,393	1,616	1,510	1,597	1,350E
90 Univ of Hawaii-Manoa	1,660	1,673	1,498	1,322	1,563	1,535	1,465	1,272
Total, 1st 90 insts.	745,242	689,831	645,701	588,197	590,436	543,212	518,560	479,012
91 University of Lowell	1,647	1,314	1,293	842	890	968	1,031	841
92 University of Connecticut	1,642	1,770	4,080	3,238	457	528	898	713
93 Rensselaer Polytech Inst	1,624	1,628	1,330	773	782	1,078	667	436
94 Columbia Univ Main Div	1,618	1,684	1,310	2,395	1,618	1,571	1,167	2,244
95 SUNY at Buffalo	1,564	1,159	1,243	947	776	600	803	720
96 Drexel University	1,561	1,424	1,282	1,628	1,062	935	761	902
97 University of Wyoming	1,531	1,249	1,400	1,282	1,383	1,133	1,197	1,149
98 Auburn University	1,498	973	916	786	663	457	562	339
99 Oregon Grad Inst Sci/Tech	1,484	1,240	2,161	1,899	807	710	1,746	1,228
100 Iowa St U of Sci & Tech	1,476	1,301	1,057	893	826	742	626	445
Total, 1st 100 insts.	760,887	703,573	661,773	602,880	599,700	551,934	528,018	488,029
Total, all other sampled insts.	67,782	65,914	68,662	61,739	44,444	43,468	45,708	41,701
Estimated total non-sampled insts.	5,589	4,186	0	0	3,322	2,663	0	0

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-54. R&D expenditures in the environmental sciences at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Institution ranking	Environmental sciences total				1990 subfields			
	1990	1989	1988	1987	Atmospheric	Earth sciences	Oceanography	Other
Total, all institutions	1,047,299	989,007	885,093	831,303	167,313	354,599	375,417	149,970
1 Univ of Cal San Diego	73,805	75,600	70,164	64,768	0	15,773	58,032	0
2 Texas A & M University	64,027	52,220	56,249	50,005	659	5,989	55,139	2,240
3 Woods Hole Ocngrphic Inst	60,404	65,436	47,100	38,345	4,332[1]	20,182[1]	15,655[1]	20,235[1]
4 Johns Hopkins Univ	41,412	43,970	32,973	27,963	10,218	2,410	17,760	11,024
5 Univ of Texas at Austin	25,285	20,919	23,440	21,893	0	16,476	8,809	0
6 Univ of Alaska Fairbanks	24,879	21,766	19,138[E]	21,666[1]	524	6,057	18,298	0
7 Columbia Univ Main Div	24,529	29,982	29,662	27,359	0	0	24,529	0
8 Univ of Hawaii-Manoa	24,188	23,005	19,907	15,734	178	21,113	1,482	1,415
9 Univ. of Colorado	23,643	22,512	22,730	20,467	12,215	8,561	1,000	1,867
10 University of Arizona	22,397	22,612	17,572	17,220	1,477	5,182	0	15,738
Total, 1st 10 insts.	384,569	378,022	338,935	305,420	29,603	101,743	200,704	52,519
11 Univ of Wis-Madison	22,033	20,869	20,640	19,637	14,297	1,915	2,460	3,361
12 University of Washington	21,389	19,198	20,316	18,717	5,868	4,338	11,027	156
13 Univ of Ill Urbana	20,749	20,702	18,205	21,340	1,049	17,606	0	2,094
14 Univ of Rhode Island	18,944	14,917[1]	15,048	15,441	0	141	18,803	0
15 University of Miami	18,626	16,132	14,065	12,983	8,563	66	6,261	3,736
16 Oregon State University	18,623	20,097	19,629	18,816	964	1,270	16,389	0
17 University of Michigan	17,154	16,142	14,600	14,023	8,742	2,901	2,394	3,117
18 California Inst of Tech	15,957	14,391	12,482	12,661	0	15,285	0	672
19 U of MD Center For EES	15,652	13,741	12,682	12,029	0	0	13,988	1,664
20 Louisiana State Univ	14,845	14,329	14,340	13,091	0	4,621	7,515	2,709
Total, 1st 20 insts.	568,541	548,540	500,942	464,158	69,086	149,886	279,541	70,028
21 Desert Research Institute	14,118	13,671	13,023	11,626	3,506	4,903	0	5,709
22 Pennsylvania State Univ	14,095	12,537	10,544	10,979	5,131	6,719	0	2,245
23 Mass Inst of Technology	12,247	11,614	11,716	10,582	245	10,165	1,837	0
24 Univ of Cal Los Angeles	12,215	11,272	11,278	11,626	2,241	9,974	0	0
25 Utah State University	10,843	11,246	8,650	13,406	6,084	4,759	0	0
26 Georgia Institute of Tech	10,257	9,918	9,405	8,595	7,675	2,582	0	0
27 SUNY at Stony Brook	9,874	10,021	9,018	9,997	285	1,982	7,368	239
28 Univ of South Carolina	9,617	7,972	6,307	5,961	0	5,865	3,752	0
29 Univ of Cal Santa Barbara	9,611	9,305	8,667	6,899	0	590	7,074	1,947
30 Univ of New Hampshire	9,309	7,391	6,847	6,089	0	1,476	1,418	6,415
Total, 1st 30 insts.	680,727	653,487	594,397	555,918	94,253	198,901	300,990	86,583
31 University of Oklahoma	9,056	8,632	8,581	9,305	4,207	4,849	0	0
32 SUNY at Albany	8,881	11,089	8,008	7,671	8,417	464	0	0
33 University of Minnesota	8,802	7,198	5,803	5,750	1,134	7,668	0	0
34 Colorado State University	8,207	7,813	7,223	6,339	8,092	115	0	0
35 Florida State University	7,996	6,912	6,844	6,267	3,569	917	2,664	846
36 Arizona State University	7,529	4,399	4,477	3,265	0	7,297	0	232
37 Univ of Southern Cal	7,207	7,305	6,462	7,618	0	3,809	1,788	1,610
38 Univ of Central Florida	7,084	8,739	2,204	8391	6,869	215	0	0
39 Southern Methodist Univ	7,011[1]	4,051	2,018	837	01	7,011[1]	01	01
40 University of Connecticut	6,796	6,569	4,574	4,379	0	607	6,189	0
Total, 1st 40 insts.	759,296	726,194	650,591	608,188	126,541	231,853	311,631	89,271
41 University of Georgia	6,737	6,111	5,417	6,118	0	3,466	3,271	0
42 University of Delaware	6,721	6,641	7,027	5,948	0	499	6,222	0
43 Univ of MD College Park	6,437	6,557	5,862	5,376	4,490	1,135	812	0
44 West Virginia University	6,314	1,378	940	952	0	501	0	5,813
45 Harvard University	6,303	6,692	6,073	6,224	0	6,303	0	0
46 Princeton University	6,270	6,388	6,210	6,223	2,758	3,512	0	0
47 Cornell University	6,215	5,504	6,964	6,123	0	3,190	0	3,025
48 University of Kansas	6,196	7,324	6,954	6,660	0	6,015	0	181
49 Univ of Massachusetts	5,979	6,062	5,715	4,499	0	3,218	23	2,738
50 Rutgers the St Univ of NJ	5,949	5,439	5,637	5,619	286	308	57	5,298
Total, 1st 50 insts.	822,417	784,290	707,390	661,930	134,075	260,000	322,016	106,326

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-54. R&D expenditures in the environmental sciences at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Institution ranking	Environmental sciences total				1990 subfields			
	1990	1989	1988	1987	Atmospheric	Earth sciences	Oceanography	Other
51 Stanford University	5,645I	5,186	4,464	4,308	0I	4,486I	1,159I	0I
52 Univ of Cal Berkeley	5,389	3,024	2,374	2,377	0	5,389	0	0
53 University of Virginia	5,322	2,588	4,175	3,437	3,743	0	1,572	7
54 N C State Univ at Raleigh	5,301	5,473	4,740	4,495	0	0	2,559	2,742
55 Univ of NC at Chapel Hill	5,192	4,700	4,343	4,047	0	2,938	2,254	0
56 Univ of South Florida	5,063	3,955	2,755	3,326	23	490	4,509	41
57 N J Inst of Technology	4,922	2,516	0	0	0	0	0	4,922
58 Univ of Cal Santa Cruz	4,694	3,796	4,685	4,024	0	2,008	2,217	469
59 Brown University	4,669	4,138	4,118	3,861	0	4,553	0	116
60 N Mex Inst Mining & Tech	4,576	4,114	3,206	2,926	2,130	2,446	0	0
Total, 1st 60 insts.	873,190	825,780	742,250	694,731	139,971	282,310	336,286	114,623
61 College of William & Mary	4,574	4,145	4,770	4,174	0	0	4,574	0
62 University of Florida	4,526	3,944	3,582	3,578	30	1,430	2,824	242
63 Univ of Nevada - Reno	4,424	3,738	4,170	3,585	123	2,354	0	1,947
64 Univ of Maine Orono	4,350	3,330	1,630	3,015	0	2,882	1,098	370
65 Tufts University	4,148	3,922	4,941	4,464	0	43	0	4,105
66 University of Chicago	4,089	3,994	3,057	3,314	0	4,089	0	0
67 San Jose State University	3,805	3,698	2,247	2,988I	729	147	2,929	0
68 Ohio State University	3,685	4,491	4,099	3,719	0	1,147	0	2,538
69 US Naval Postgrad School	3,558	3,029	3,865	2,931	1,746	0	1,812	0
70 University of Utah	3,521	3,477	3,290	2,675	1,149	2,372	0	0
Total, 1st 70 insts.	913,870	863,548	775,901	726,174	143,748	296,774	349,523	123,825
71 VA Polytech Inst & St U	3,434	3,497	2,488	3,111	0	3,434	0	0
72 University of Wyoming	3,046	2,704	2,842	2,515	1,330	1,116	0	600
73 Univ of Nebraska-Lincoln	2,996	3,314	4,170	3,762	1,126	1,870	0	0
74 Memphis State University	2,946	2,679	2,313	2,281	0	2,946	0	0
75 University of N Dakota	2,882	2,923	2,679	3,396	2,817	2	0	63
76 Rice University	2,849	2,175	2,257	1,746I	0	1,219	0	1,630
77 Univ of Wis-Milwaukee	2,740	2,457	2,266	2,456	0	218	2,478	44
78 University of Oregon	2,655	2,510	950	752	0	703	1,947	5
79 Duke University	2,520	3,316	3,732	3,563	0	360	2,160	0
80 Yale University	2,329	2,153	2,241	1,892	798	882	518	131
Total, 1st 80 insts.	942,267	890,276	801,839	751,648	149,819	309,524	356,626	126,298
81 Fairleigh Dickinson Univ	2,297	2,274I	3,140	2,308	0	0	2,297	0
82 The University of Alabama	2,244	2,291	940	1,397	2	740	54	1,448
83 SUNY Col of Env Sci & For	2,177	2,234	1,103	683	271	118	459	1,329
84 Oregon Grad Inst Sci/Tech	2,165	2,289	2,209	1,802	1,010	0	0	1,155
85 New Mexico State Univ	2,108I	1,788	1,939	929	1,682I	342I	0I	84I
86 University of Idaho	2,006	1,436	1,230	887	0	1,564	0	442
87 Washington University	1,999	1,966	1,783	1,540	0	1,999	0	0
88 U of Houston	1,934	1,275	1,699	1,478	0	1,378	0	556
89 Carnegie-Mellon Univ	1,886	1,676	1,701	1,761	0	0	0	1,886
90 Purdue University	1,882	2,020	1,804	1,651	387I	755I	536I	204I
Total, 1st 90 insts.	962,965	909,525	819,387	766,084	153,171	316,420	359,972	133,402
91 Michigan State University	1,758	1,159	1,017	776	0	171	0	1,587
92 Univ of Wis-Superior	1,692	1,745	1,552	1,654	0	0	0	1,692
93 University of New Mexico	1,628	1,521	1,568	1,352	677	951	0	0
94 Univ. Of Tennessee System	1,607	1,425	1,080	1,014	102	1,505	0	0
95 Florida Inst of Tech	1,544	1,357	639	507	0	316	1,228	0
96 Old Dominion U Res Fdn	1,536	1,229	1,088	948	0	203	1,333	0
97 Univ of Cal Riverside	1,519	1,462	1,384	1,511	0	1,519	0	0
98 S Dak Sch Mines & Tech	1,504	1,573	1,286	1,188	1,504	0	0	0
99 Oklahoma State University	1,469	1,003	427	308	0	767	0	702
100 Univ of Texas at Dallas	1,467	577	546	723	0	1,467	0	0
Total, 1st 100 insts.	978,689	922,606	829,974	776,065	155,454	323,319	362,533	137,383
Total, all other sampled insts.	48,183	47,947	55,119	55,238	5,675	26,203	4,298	12,007
Estimated total non-sampled insts.	20,427	18,454	0	0	6,184	5,077	8,586	580

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

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Table B-55. Federally financed R&D expenditures in the environmental sciences at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Institution ranking	Environmental sciences total				1990 subfields			
	1990	1989	1988	1987	Atmospheric	Earth sciences	Oceanography	Other
Total, all institutions	674,129	647,844	583,152	541,062	127,487	204,909	267,720	74,013
1 Univ of Cal San Diego	53,102	57,182	53,001	47,102	0	9,448	43,654	0
2 Woods Hole Ocngrphic Inst	33,643	37,043	40,800	33,976	3,583I	18,434I	13,373I	17,252I
3 Texas A & M University	45,980	42,308	41,651	40,290	466	1,655	42,383	1,476
4 Johns Hopkins Univ	37,661	40,712	29,278	25,726	10,124	1,951	17,119	8,467
5 Columbia Univ Main Div	23,965	28,204	27,073	26,358	0	0	23,965	0
6 University of Washington	20,274	17,954	19,195	16,593	5,621	4,132	10,447	74
7 Univ. of Colorado	20,252	18,997	19,362	17,545	10,615	7,066	911	1,660
8 Oregon State University	16,568	16,577	15,640	14,620	897	1,015	14,656	0
9 Univ of Wis-Madison	15,865	14,461	14,852	14,143	12,838	812	630	1,585
10 Univ of Hawaii-Manoa	15,393	14,673	13,657	10,732	178	13,800	1,024	391
Total, 1st 10 insts.	301,702	308,111	274,509	247,085	44,322	58,313	168,162	30,905
11 California Inst of Tech	15,155	13,628	11,459	11,136	0	15,083	0	72
12 University of Miami	14,981	13,691	11,194	9,469	7,265	56	4,844	2,816
13 Univ of Rhode Island	14,239	10,829I	11,334	11,724	0	17	14,222	0
14 Univ of Alaska Fairbanks	14,079	11,390	10,015E	11,243I	516	2,762	10,801	0
15 University of Michigan	13,150	11,965	11,870	11,124	8,196	1,590	1,727	1,637
16 Mass Inst of Technology	9,776	9,032	9,583	8,400	196	8,114	1,466	0
17 Univ of Cal Los Angeles	8,654	7,753	7,779	7,465	2,107	6,547	0	0
18 Colorado State University	7,414	7,134	6,589	5,942	7,307	107	0	0
19 Arizona State University	7,073	4,017	3,399	1,083	0	7,073	0	0
20 Univ of Cal Santa Barbara	7,029	6,604	5,621	4,515	0	468	5,138	1,423
Total, 1st 20 insts.	413,252	404,154	363,352	329,186	69,909	100,130	206,360	36,853
21 Desert Research Institute	6,983	7,380	6,931	5,792	2,313	3,788	0	882
22 Southern Methodist Univ	6,896I	3,913	1,935	810	0I	6,896I	0I	0I
23 Univ of Texas at Austin	6,644	5,137	8,284	7,206	0	4,514	2,130	0
24 University of Arizona	6,644	6,665	4,693	4,914	379	2,812	0	3,453
25 Pennsylvania State Univ	6,313	5,857	5,062	5,263	3,952	1,902	0	459
26 SUNY at Stony Brook	6,018	5,081	6,172	3,121	82	1,467	4,469	0
27 Louisiana State Univ	5,975	4,822	4,919	4,343	0	1,877	3,221	877
28 Univ of Ill Urbana	5,876	6,030	5,941	5,768	852	4,535	0	489
29 Harvard University	5,815	6,202	6,019	6,161	0	5,815	0	0
30 Georgia Institute of Tech	5,784	5,568	4,188	4,509	4,328	1,456	0	0
Total, 1st 30 insts.	476,200	460,809	417,496	377,073	81,815	135,192	216,180	43,013
31 Univ of New Hampshire	5,224	4,231	4,315	4,318	0	1,024	686	3,514
32 Univ of Southern Cal	5,196	5,326	4,747	5,955	0	2,937	1,288	971
33 West Virginia University	5,106	554	366	279	0	305	0	4,801
34 Utah State University	4,998	5,811	4,867	10,010	3,998	1,000	0	0
35 SUNY at Albany	4,953	5,282	5,145	5,209	4,614	339	0	0
36 University of Virginia	4,670	3,940	3,526	2,894	3,132	0	1,538	0
37 Univ of MD College Park	4,593	5,061	4,503	4,058	3,589	192	812	0
38 University of Connecticut	4,341	4,366	5,604	5,490	0	427	3,914	0
39 Florida State University	4,183	3,877	3,960	3,667	2,451	350	994	388
40 Brown University	3,961	3,499	3,858	3,651	0	3,961	0	0
Total, 1st 40 insts.	523,425	502,756	455,387	419,604	99,599	145,727	225,412	52,687
41 Univ of Cal Berkeley	3,954	2,011	1,432	1,489	0	3,954	0	0
42 Princeton University	3,930	3,454	3,289	3,503	2,018	1,912	0	0
43 University of Delaware	3,786	3,666	3,505	2,857	0	259	3,527	0
44 Tufts University	3,737	2,937	2,049	2,062	0	38	0	3,699
45 University of Chicago	3,728	3,765	2,817	3,104	0	3,728	0	0
46 US Naval Postgrad School	3,543	2,981	3,862	2,906	1,746	0	1,797	0
47 Stanford University	3,390I	3,218	3,035	3,133	0I	2,339I	1,051I	0I
48 College of William & Mary	3,346	2,601	2,472	2,145	0	0	3,346	0
49 Cornell University	3,161	3,120	4,935	4,607	0	2,408	0	753
50 San Jose State University	2,936	3,116	1,998	1,812I	638	24	2,274	0
Total, 1st 50 insts.	558,936	533,625	484,778	447,222	104,001	160,389	237,407	57,139

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-55. Federally financed R&D expenditures in the environmental sciences at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Institution ranking	Environmental sciences total				1990 subfields			
	1990	1989	1988	1987	Atmospheric	Earth sciences	Oceanography	Other
51 Univ of South Carolina	2,827	2,612	2,342	1,851	0	1,319	1,508	0
52 Univ of Maine Orono	2,806	2,236	1,061	2,061	0	1,840	759	207
53 Univ of South Florida	2,785	3,080	1,983	2,323	0	91	2,694	0
54 Univ of Cal Santa Cruz	2,725	2,270	2,846	2,248	0	1,373	1,215	137
55 University of N Dakota	2,704	2,874	2,257	2,532	2,682	1	0	21
56 N C State Univ at Raleigh	2,625	2,257	2,426	3,119	0	0	951	1,674
57 Univ of NC at Chapel Hill	2,614	2,666	2,412	2,256	0	1,591	1,023	0
58 Univ of Nevada - Reno	2,467	1,800	2,500	1,240	123	1,764	0	580
59 University of Minnesota	2,440	2,790	2,708	2,273	0	2,440	0	0
60 University of Oklahoma	2,399	2,494	2,281	2,152	1,735	664	0	0
Total, 1st 60 insts.	585,328	558,704	507,594	469,277	108,541	171,472	245,557	59,758
61 U of MD Center For EES	2,379	2,519	2,542	2,629	0	0	2,177	202
62 Fairleigh Dickinson Univ	2,295	2,230I	3,099	2,264	0	0	2,295	0
63 Rice University	2,274	1,808	1,950	1,223I	0	1,082	0	1,192
64 University of Oregon	2,206	2,048	550	499	0	444	1,762	0
65 Ohio State University	1,993	2,465	2,195	2,166	0	673	0	1,320
66 University of Utah	1,978	2,238	2,166	1,506	851	1,127	0	0
67 N Mex Inst Mining & Tech	1,940	1,897	788	1,155	1,298	642	0	0
68 University of Florida	1,940	1,820	1,827	1,466	0	518	1,290	132
69 University of Georgia	1,826	1,574	1,437	1,653	0	651	1,175	0
70 University of Wyoming	1,825	2,055	2,025	1,733	900	705	0	220
Total, 1st 70 insts.	605,984	579,358	526,173	485,571	111,590	177,314	254,256	62,824
71 Duke University	1,817	2,112	1,909	1,617	0	242	1,575	0
72 New Mexico State Univ	1,797I	1,501	1,500	549	1,604I	193I	0I	0I
73 Yale University	1,754	1,482	1,643	1,525	667	737	263	87
74 VA Polytech Inst & St U	1,580	1,694	816	1,405	0	1,580	0	0
75 Univ of Wis-Superior	1,550	1,495	1,309	1,412	0	0	0	1,550
76 Wentworth Inst of Tech	1,435	1,383	1,457	1,431I	1,435	0	0	0
77 Washington University	1,414	1,470	1,379	1,216	0	1,414	0	0
78 Oregon Grad Inst Sci/Tech	1,406	1,595	1,740	1,651	789	0	0	617
79 Purdue University	1,331	1,558	1,288	1,346	332I	503I	401I	95I
80 S Dak Sch Mines & Tech	1,274	1,367	1,068	971	1,274	0	0	0
Total, 1st 80 insts.	621,342	595,015	540,282	498,694	117,691	181,983	256,495	65,173
81 Univ of P R-Mayaguez	1,251	1,067	1,075	392	0	793	458	0
82 N J Inst of Technology	1,241E	0	0	0	0	0	0	1,241E
83 Univ of Massachusetts	1,200	1,396	1,199	1,139	0	969	10	221
84 Old Dominion U Res Fdn	1,173	874	650	539	0	182	991	0
85 Univ of Wis-Milwaukee	1,155	1,047	836	1,009	0	101	1,048	6
86 Nova University	1,035	878	746	686	0	0	1,035	0
87 University of Lowell	1,017	33	439	29	0	67	0	950
88 University of Idaho	998	653	315	198	0	846	0	152
89 Univ of Cal Davis	996	626	677	932	0	996	0	0
90 Univ Alabama Huntsville	914	670	336	66	914	0	0	0
Total, 1st 90 insts.	632,322	602,259	546,555	503,684	118,605	185,937	260,037	67,743
91 Univ of Cal Riverside	892	981	965	862	0	892	0	0
92 University of New Mexico	802	788	871	584	284	518	0	0
93 Univ of Central Florida	791	4,225	873	341I	791	0	0	0
94 Northwestern University	768	794	866	514	0	768	0	0
95 Univ. Of Tennessee System	745	668	494	616	102	643	0	0
96 Michigan State University	740	315	179	116	0	103	0	637
97 Rutgers the St Univ of NJ	710	804	1,000	1,372	5	140	0	565
98 St Louis University	704	578	442	695I	0	704	0	0
99 Univ of Nebraska-Lincoln	679	1,469	2,386	2,190	397	282	0	0
100 Memphis State University	622	504	446	374	0	622	0	0
Total, 1st 100 insts.	639,775	613,385	555,077	511,348	120,184	190,609	260,037	68,945
Total, all other sampled insts.	19,754	20,023	28,075	29,714	1,436	12,115	1,248	4,955
Estimated total non-sampled insts.	14,600	14,436	0	0	5,867	2,185	6,435	113

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-56. Total and federally financed R&D expenditures in the mathematical sciences at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1990	1989	1988	1987	1990	1989	1988	1987
Total, all institutions	221,297	214,631	199,104	176,872	158,688	155,989	149,259	131,378
1 Johns Hopkins Univ	33,545	35,960	35,951	29,214	33,475	35,870	35,841	29,118
2 Univ of MD College Park	8,936	7,956	7,253	6,875	1,716	1,562	1,263	1,170
3 Rutgers the St Univ of NJ	8,479	6,114	6,012	4,164	4,658	2,345	2,926	2,126
4 University of Washington	6,247	5,436	4,122	4,071	5,774	4,902	3,750	3,452
5 Cornell University	5,819	5,194	5,436	4,254	4,557	3,930	4,312	3,320
6 George Washington Univ	5,552	5,260	4,109	3,607	5,161	5,064	3,985E	3,470
7 University of Minnesota	4,719	4,704	4,329	3,746	3,969	4,013	3,768	3,194
8 Brown University	4,260	5,455	5,441	3,838	3,823	4,720	5,041	3,705
9 Iowa St U of Sci & Tech	4,082	4,184	3,671	3,479	3,488	3,631	3,374	3,339
10 New York University	4,065	4,824	6,701	6,077	3,655	4,422	6,219	5,533
Total, 1st 10 insts.	85,704	85,087	83,025	69,325	68,251	68,459	68,479	56,427
11 Univ of Cal Berkeley	3,983	3,911	3,643	3,377	3,612	3,337	3,169	3,091
12 Univ of Wis-Madison	3,905	3,619	4,188	3,998	3,668	3,390	3,777	3,843
13 Boston College	3,649	3,500	2,062	1,599	3,062	3,372	2,056	1,528
14 Univ of Cal Los Angeles	3,456	3,009	2,655	2,143	3,363	2,899	2,504	2,091
15 N C State Univ at Raleigh	3,203	3,091	2,608	2,512	1,258	1,208	1,022	961
16 Stanford University	3,0821	2,900	2,855	2,711	2,7411	2,602	2,598	2,522
17 Princeton University	2,768	3,320	2,674	2,190	1,976	2,196	1,996	1,836
18 University of Michigan	2,454	1,646	1,590	1,557	1,745	1,392	1,488	1,404
19 VA Polytech Inst & St U	2,406	2,374	1,738	1,547	1,176	1,371	994	920
20 UT MD Anderson Cancer Ctr	2,358	2,265	1,990	1,676	1,047	1,019	831	749
Total, 1st 20 insts.	116,968	113,722	109,028	92,635	90,862	89,245	87,914	74,372
21 Mass Inst of Technology	2,354	2,300	2,194	2,474	2,245	2,215	2,126	2,414
22 Purdue University	2,353	1,967	1,793	1,880	1,820	1,695	1,314	1,291
23 Florida State University	2,306	2,494	2,337	2,128	722	638	671	574
24 Univ of Ill Urbana	2,233	2,242	1,872	2,382	1,378	1,490	1,317	1,521
25 University of Georgia	2,170	1,729	1,472	1,484	277	355	389	369
26 SUNY at Stony Brook	2,166	1,513	1,350	1,069	1,425	1,014	988	971
27 Pennsylvania State Univ	2,104	1,725	1,181	1,245	1,372	1,118	930	907
28 Harvard University	2,060	2,174	1,362	1,621	2,049	1,773	1,362	1,621
29 University of Florida	1,948	1,994	1,604	1,375	1,216	1,427	1,233	1,106
30 University of Chicago	1,913	1,912	1,742	1,837	1,541	1,486	1,479	1,557
Total, 1st 30 insts.	138,575	133,772	125,935	110,130	104,907	102,456	99,722	86,703
31 Univ of Ill Chicago	1,904	1,657	1,453	1,294	1,370	1,229	1,130	1,003
32 Carnegie-Mellon Univ	1,766	1,922	1,709	1,190	1,499	1,671	1,617	1,120
33 University of Arizona	1,762	1,850	1,839	1,152	1,386	1,509	1,563	991
34 Clemson University	1,674	1,850	1,747	1,839	431	592	664	1,020
35 Ohio State University	1,665	1,393	1,113	881	1,346	1,169	872	678
36 Univ. Of Tennessee System	1,590	1,808	1,975	785	325	452	561	278
37 Univ Alabama Huntsville	1,576	1,472	804	670	1,009	934	709	662
38 Univ of Cal San Diego	1,541	1,553	1,505	1,478	1,478	1,525	1,448	1,449
39 Rensselaer Polytech Inst	1,529	1,561	1,291	768	736	919	648	433
40 Yale University	1,421	1,279	1,152	932	1,279	1,138	1,067	883
Total, 1st 40 insts.	155,003	150,117	140,523	121,119	115,766	113,594	110,001	95,220
41 Texas A & M University	1,400	1,187	859	1,759	1,156	1,041	788	604
42 Georgia Institute of Tech	1,365	1,046	656	684	769	587	392	358
43 Rice University	1,349	1,192	1,191	8251	1,309	1,155	1,191	8231
44 Univ of NC at Chapel Hill	1,328	1,492	1,372	1,349	1,233	1,462	1,290	1,321
45 Louisiana State Univ	1,315	2,562	2,723	2,433	289	224	195	220
46 Univ of Massachusetts	1,271	1,505	1,224	1,066	1,083	1,352	1,175	983
47 Univ of Southern Cal	1,214	1,054	1,051	867	828	841	708	578
48 Univ. of Colorado	1,188	1,017	1,042	928	1,132	990	995	760
49 University of Virginia	1,173	1,216	960	748	959	964	797	603
50 University of Utah	1,161	1,070	1,015	1,213	967	847	917	1,087
Total, 1st 50 insts.	167,767	163,458	152,616	132,991	125,491	123,057	118,449	102,557

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-56. Total and federally financed R&D expenditures in the mathematical sciences at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1990	1989	1988	1987	1990	1989	1988	1987
51 Indiana University	1,102	1,236	1,256	815	812	751	661	542
52 CUNY Grad Sch & Univ Ctr	1,046	427	441	673	1,035	132	249	673
53 Columbia Univ Main Div	1,043	1,164	1,125	1,364	1,042	1,127	1,100	1,352
54 Univ of Pennsylvania	1,013	750	699	1,003	892	741	699	975
55 Univ of South Carolina	979	577	497	1,390	494	371	298	340
56 Northwestern University	973	736	590	570	766	655	546	529
57 Washington University	947	972	1,046	995	881	832	944	829
58 U of Houston	908	835	697	769	478	486	525	568
59 Univ of Cal Santa Barbara	905	1,232	1,285	1,108	682	937	894	759
60 Univ of Ark Fayetteville	893	750	632	707	213	138	84	59
Total, 1st 60 insts.	177,576	172,137	160,884	142,385	132,786	129,227	124,449	109,183
61 Univ of Texas at Austin	890	947	708	794	645	651	513	659
62 University of Oklahoma	857	586	773	523	232	205	263	134
63 California Inst of Tech	849	623	484	517	836	604	467	501
64 Oregon State University	847	676	648	639	448	469	415	345
65 University of Pittsburgh	797	858	1,472	1,568	582	685	1,307	1,358
66 University of Connecticut	788	711	498	406	397	394	282	217
67 University of Iowa	782	833	905	802	402	538	645	551
68 The University of Alabama	761	571	452	503	60	32	34	62
69 Arizona State University	728	569	239	225	461	433	213	159
70 Colorado School of Mines	724	802	633	759	518	503	286	467
Total, 1st 70 insts.	185,599	179,313	167,696	149,121	137,367	133,741	128,874	113,636
71 University of Dayton	692	259	310	340	637	216	257	287
72 Drexel University	673	535	490	409	108	78	38	67
73 University of Wyoming	663	817	175	294	608	801	157	292
74 Univ of Cal Riverside	654	682	659	642	324	347	365	358
75 Boston University	650	528	778	971	537	433	633	959
76 Wesleyan University	648I	584	232	58	127I	144	149	47
77 Colorado State University	626	409	330	377	448	312	229	351
78 Union College (NY)	622	562	567	353I	96I	491	231	181
79 Duke University	597	524	404	287	502	454	399	258
80 Brandeis University	591	555	442	565I	535	487	375	424I
Total, 1st 80 insts.	192,015	184,768	172,083	153,417	141,289	137,062	131,499	116,697
81 Univ Alabama Birmingham	587	449	299	286	164	118	193	18
82 University of Delaware	548	546	645	666	415	433	457	508
83 U of MD Baltimore County	523	423	269	145	519	406	267	141
84 Kans St U - Ag & App Sci	512	438	404	393	169	109	107	126
85 Washington State Univ	504	486	428	467	339	367	403	418
86 Univ of Cal Davis	499	713	694	823	426	571	517	458
87 Kent State University	498	637	212	236	396	408	132	199
88 Michigan State University	478	760	895	887	374	585	694	645
89 Oklahoma State University	466	327	605	388	219	192	169	127
90 Dartmouth College	459E	367	220	58	267I	242	189	53E
Total, 1st 90 insts.	197,089	189,914	176,754	157,766	144,577	140,493	134,627	119,390
91 University of Notre Dame	443	461	282	269	365	424	264	250
92 Northern Illinois Univ	431I	342	389	445E	77I	70	93	112
93 Univ of Southwestern LA	426	435	338	408	30	75	25	22
94 Clarkson University	416	456	616	772	373	425	577	722
95 Auburn University	409	235	147	87	92	148	96	58
96 US Naval Postgrad School	401	722	672	765	401	722	672	765
97 Tulane University	394	577	231	221	188	400	139	131
98 Oakland University	387I	333	63	59	0I	0	0	0
99 University of Kentucky	373	505	467	344	334	476	424	307
100 Old Dominion U Res Fdn	371	245	173	96	371	245	173	96
Total, 1st 100 insts.	201,140	194,225	180,132	161,232	146,808	143,478	137,090	121,818
Total, all other sampled insts.	17,185	17,740	18,972	15,640	10,629	11,071	12,169	9,560
Estimated total non-sampled insts.	2,972	2,666	0	0	1,251	1,440	0	0

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-57. Total and federally financed R&D expenditures in the computer sciences at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Institution ranking	Total				Federally financed			
	1990	1989	1988	1987	1990	1989	1988	1987
Total, all institutions	502,623	468,270	410,157	373,114	333,615	317,911	289,014	257,121
1 Johns Hopkins Univ	63,497	68,832	54,337	51,644	63,383	68,748	54,206	51,595
2 Carnegie-Mellon Univ	44,808	45,946	39,261	35,076	33,951	32,412	29,765	26,531
3 Univ of Southern Cal	30,718	32,092	27,896	22,472	27,705	28,850	25,771	21,031
4 Cornell University	21,327	16,325	14,102	12,648	17,457	12,433	11,044	9,845
5 Univ of Ill Urbana	15,773	14,721	14,668	14,592	7,509	7,291	6,786	6,719
6 Georgia Institute of Tech	15,295	17,522	13,325	10,030	8,624	9,836	7,195	5,262
7 Stanford University	13,560I	12,752	13,665	12,275	12,008I	11,397	12,186	10,631
8 Mass Inst of Technology	12,343	11,303	10,295	10,554	8,858	8,447	7,914	7,994
9 University of Minnesota	11,721	1,965	1,363	1,605	8,584	989	858	722
10 Syracuse University	10,351	8,776	12,956	9,517	5,211	4,287	9,730	4,823
Total, 1st 10 insts.	239,393	230,234	201,868	180,413	193,290	184,690	165,455	145,153
11 West Virginia University	10,211	4,544	673	254	359	413	421	132
12 New Mexico State Univ	9,658I	8,154	12,684	20,613	8,590I	7,172	9,705	14,949
13 Univ of Texas at Austin	9,653	10,479	10,322	11,200	1,852	3,456	3,588	4,558
14 Univ of MD College Park	9,240	8,054	7,339	6,649	2,875	2,212	2,310	2,814
15 Univ of Massachusetts	8,504	8,213	7,913	6,948	6,508	6,373E	6,527	5,721
16 Univ of Pennsylvania	7,970	7,415	6,836	5,661	6,114	5,163	4,193	4,222
17 University of Michigan	7,688	6,491	1,459	4,101	5,941	3,395	741	729
18 Univ of Cal San Diego	7,202	5,521	5,560	4,776	2,985	5,483	2,880	2,749
19 New York University	6,903	8,179	7,136	7,003	6,286	7,049	5,875	5,707
20 Univ of NC at Chapel Hill	6,636	6,563	5,312	4,699	4,187	4,040	3,276	2,685
Total, 1st 20 insts.	323,058	303,847	267,102	252,317	235,987	226,446	204,971	189,419
21 Yale University	5,899	8,065	9,928	5,803	5,045	7,110	8,997	4,836
22 Rice University	5,369	3,030	1,799	1,141I	5,046	2,511	1,381	854I
23 Brown University	5,029	4,592	4,096	3,797	2,316	1,950	1,549	1,214
24 Clemson University	5,018	4,003	1,530	1,441	661	1,583	951	727
25 Washington University	4,361	3,355	4,036	3,717	2,591	2,481	3,291	3,354
26 Rutgers the St Univ of NJ	4,310	5,164	3,256	2,856	1,731	1,522	1,672	1,684
27 Princeton University	4,293	4,016	4,634	5,590	2,842	3,165	3,145	1,987
28 Iowa St U of Sci & Tech	4,232	4,419	4,865	3,925	80	40	0	17
29 Texas A & M University	4,075	2,805	2,384	5,531	1,787	1,379	297	4
30 Univ of Wis-Madison	3,966	4,912	2,616	3,173	2,979	4,034	1,684	2,255
Total, 1st 30 insts.	369,610	346,208	306,246	283,291	261,065	252,221	227,938	206,351
31 Univ of Cal Los Angeles	3,938	3,622	4,120	4,797	2,618	1,989	2,395	3,296
32 Univ of Cal Irvine	3,863	5,882	2,750	5,107	3,140	2,303	5,055	1,808
33 Columbia Univ Main Div	3,419	3,882	3,125	5,554	2,523	5,742	5,241	1,898
34 University of Georgia	3,383	3,480	3,444	3,359	1,802	2,154	2,071	2,033
35 California Inst of Tech	3,347	3,458	2,966	1,925	2,542	2,428	1,921	463
36 Univ. Of Tennessee System	3,270	2,586	2,832	1,436	1,462	1,272	733	492
37 SUNY at Buffalo	3,128	2,272	1,901	973	1,986	1,231	1,290	715
38 Purdue University	3,033	3,177	3,875	2,127	2,375	2,611	3,455	1,872
39 Univ. of Colorado	3,010	2,935	2,289	1,923	2,282	1,823	1,787	1,723
40 University of Washington	2,936	2,820	2,293	2,342	2,777	2,801	2,040	2,143
Total, 1st 40 insts.	402,937	377,322	335,841	306,834	284,572	273,575	247,926	222,794
41 University of Utah	2,896	2,920	2,458	2,534	1,804	2,148	1,978	2,329
42 Univ Alabama Huntsville	2,738	2,928	1,233	217	1,558	1,837	793	211
43 University of Virginia	2,729	2,756	2,400	1,248	2,132	2,198	1,982	828
44 University of Florida	2,533	1,406	625	673	1,207	419	414	445
45 Univ of Southwestern LA	2,507	2,435	284	1,096	255	132	139	219
46 University of Arizona	2,496	2,491	2,038	2,024	1,724	1,857	1,617	1,603
47 Rensselaer Polytech Inst	2,259	1,548	1,715	791	1,088	950	861	446
48 Duke University	2,099	1,697	1,768	1,469	1,786	1,509	1,379	1,019
49 Southern Ill U-Carbondale	1,977	2,444	1,714	1,483	0	0	0	0
50 University of Rochester	1,897	2,630	2,397	2,260	1,725	2,096	2,216	1,843
Total, 1st 50 insts.	427,068	400,577	352,473	320,629	297,851	286,721	259,305	231,737

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-57. Total and federally financed R&D expenditures in the computer sciences at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Institution ranking	Total				Federally financed			
	1990	1989	1988	1987	1990	1989	1988	1987
51 Harvard University	1,849	1,222	1,078	361	1,532	1,108	1,078	361
52 N J Inst of Technology	1,815	2,189	553	796	0	80	70	0
53 Oregon Grad Inst Sci/Tech	1,672	1,645	921	743	1,577	1,471	633	415
54 University of Connecticut	1,632	1,386	1,210	853	148	196	286	238
55 Indiana University	1,600	1,391	1,010	1,438	1,313	1,189	908	1,314
56 Univ of Cal Santa Barbara	1,591	1,128	1,342	1,440	1,206	837	879	837
57 University of Oklahoma	1,587	926	475	1,363	522	276	108	472
58 N C State Univ at Raleigh	1,570	1,423	715	284	825	790	672	282
59 SUNY at Stony Brook	1,501	1,699	1,613	1,978	1,137	1,322	1,185	1,688
60 New York Inst Technology	1,486	2,239I	3,162I	3,390	0	0I	181I	191
Total, 1st 60 insts.	443,371	415,825	364,552	333,275	306,111	293,990	265,305	237,535
61 Pennsylvania State Univ	1,449	1,135	811	340	837	685	524	225
62 Southern Methodist Univ	1,447I	972	1,182	1,406	1,208I	686	1,156E	1,308E
63 Univ of Missouri Kan City	1,439	1,502	1,502	682	0	0	0	0
64 Arizona State University	1,436	1,110	913	719	561	833	623	168
65 San Diego State Univ	1,396	1,291	1,180	1,213	1,004	1,125	1,130	1,213
66 University of Delaware	1,340	1,387	530	612	1,033	1,154	269	73
67 Univ of Cal Berkeley	1,331	511	685	451	287	137	122	32
68 US Naval Postgrad School	1,243	1,732	1,818	1,649	1,234	1,713	1,818	1,580
69 The University of Alabama	1,213	1,311	1,344	1,837	0	48	244	691
70 Ohio State University	1,163	814	1,040	749	795	574	700	656
Total, 1st 70 insts.	456,828	427,590	375,557	342,933	313,070	300,943	271,891	243,481
71 Univ of Nebraska-Lincoln	1,140	964	753	588	388	359	267	235
72 Georgetown University	1,114	660	872	0	856	481	629	0
73 VA Polytech Inst & St U	1,032	824	1,048	1,021	342	226	121	425
74 Wright State University	1,028	0	1	8	662	0	0	0
75 Univ of South Carolina	1,015	1,593	222	258	69	67	56	33
76 University of Chicago	1,009	631	442	236	970	611	349	182
77 University of Iowa	963	1,153	1,012	1,210	101	175	60	54
78 Kent State University	917	0	13	6	917	0	13	6
79 University of Pittsburgh	876	556	522	387	554	317	272	203
80 Northwestern University	871	709	769	555	265	339	346	320
Total, 1st 80 insts.	466,793	434,680	381,211	347,202	318,194	303,518	274,004	244,939
81 Oregon State University	858	537	573	462	289	168	190	197
82 Old Dominion U Res Fdn	839	546	308	167	617	294	304	150
83 Northeastern University	824	562	310	183	778	562	310	183
84 University of Lowell	818	658	273	60	0	0	0	0
85 Georgia State University	812	552	485	188	0	0	0	40
86 Univ of Hawaii-Manoa	798	88	73	49	793	86	35	20
87 College of William & Mary	768	525	268	105	412	402	225	105
88 Florida State University	721	944	658	703	102	160	161	63
89 Auburn University	701	695	386	779	340	245	200	463
90 Univ of Texas at Dallas	690	534	326	423	163	126	212	212
Total, 1st 90 insts.	474,622	440,321	384,871	350,321	321,688	305,561	275,641	246,372
91 George Mason University	688	535	386	884E	255	76	74	82
92 Univ of Central Florida	671	436	112	162I	388	236	33	98I
93 Louisiana State Univ	639	930	511	523	37	55	65	117
94 Air Force Inst of Tech/Nr	634	535I	434	139	634	535I	434	139
95 Univ of Cal Davis	631	0	0	0	0	0	0	0
96 SUNY at Albany	630	452	363	95	462	319	263	0
97 Jackson State University	607	651	384	45	399	651	384	45
98 Oklahoma State University	592	702	135	78	104	170	0	0
99 Rockefeller University	585	653	608	623	0	10	145	250
100 NC Ag & Tech State Univ	574	0	0	0	558	0	0	0
Total, 1st 100 insts.	480,873	445,215	387,804	352,870	324,525	307,613	277,039	247,103
Total, all other sampled insts.	17,545	19,059	22,353	20,244	7,683	8,566	11,975	10,018
Estimated total non-sampled insts.	4,205	3,996	0	0	1,407	1,732	0	0

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-58. R&D expenditures in the life sciences at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Institution ranking	Life sciences total				1990 subfields			
	1990	1989	1988	1987	Agricultural sciences	Biological sciences	Medical sciences	Other
Total, all institutions	8,763,473	8,087,563	7,255,727	6,532,850	1,350,591	2,844,472	4,196,183	372,226
1 Univ of Cal San Francisco	238,278	219,446	193,289	169,436	0	0	238,278	0
2 Johns Hopkins Univ	208,607	180,099	156,663	136,173	0	57,474	117,366	33,767
3 University of Minnesota	204,590	187,347	173,579	162,125	47,070	36,218	99,238	22,064
4 Univ of Wis-Madison	178,337	165,141	155,996	144,686	28,087	51,297	95,903	3,050
5 Univ of Cal Davis	177,754	162,623	138,273	128,937	95,153	29,489	53,833	279
6 Cornell University	166,595	163,640	149,475	139,389	42,578	39,731	75,576	8,710
7 University of Michigan	162,379	143,184	131,959	113,493	153	54,127	93,805	14,294
8 Univ of Cal Los Angeles	157,626	144,933	125,396	107,477	22	20,979	133,412	3,213
9 Baylor Col of Medicine	155,122	134,681	106,814	90,179	0	68,716	86,406	0
10 University of Washington	152,755	136,184	112,899	110,133	10,309	49,401	77,129	15,916
Total, 1st 10 insts.	1,802,043	1,637,278	1,444,343	1,302,028	220,372	407,432	1,072,946	101,293
11 Yale University	143,093	132,778	122,179	111,541	1,063	54,898	87,132	0
12 Stanford University	138,546	129,352	117,790	103,083	01	10,565	126,505	1,476
13 Harvard University	136,522	127,771	117,371	105,468	1	68,950	67,571	0
14 Washington University	133,337	111,638	101,874	89,791	0	55,023	74,667	3,647
15 Univ of Pennsylvania	132,599	117,746	111,821	109,717	0	31,681	100,918	0
16 Columbia Univ Main Div	113,392	100,063	92,481	86,538	0	47,751	65,322	319
17 University of Georgia	111,742	103,667	100,377	89,640	54,494	42,588	14,660	0
18 Univ of Cal San Diego	111,314	99,224	89,775	81,410	0	11,405	99,909	0
19 Duke University	111,309	102,646	90,984	70,976	1,740	30,788	77,747	1,034
20 Texas A & M University	106,885	102,993	101,181	95,841	38,997	63,850	3,229	809
Total, 1st 20 insts.	3,040,782	2,765,156	2,490,176	2,246,033	316,667	824,931	1,790,606	108,578
21 Univ Alabama Birmingham	104,185	94,157	80,302	68,363	0	31,192	71,806	1,187
22 Ohio State University	93,307	91,583	82,221	67,763	33,045	32,314	24,543	3,405
23 Univ of NC at Chapel Hill	92,270	91,710	80,351	70,673	0	44,205	41,524	6,541
24 University of Pittsburgh	90,285	84,583	74,538	60,019	0	3,214	67,811	19,260
25 Univ of Cal Berkeley	87,951	83,990	72,444	70,457	46,886	27,161	13,809	95
26 UT SW Medical Ctr-Dallas	85,919	79,920	70,392	62,907	0	36,474	49,445	0
27 University of Rochester	85,078	80,283	75,446	65,007	0	29,701	51,965	3,412
28 New York University	84,854	76,883	73,643	73,700	0	28,582	41,404	14,868
29 UT MD Anderson Cancer Ctr	84,819	80,032	70,305	61,366	0	38,545	45,258	1,016
30 Yeshiva University	83,968	74,486	75,371	73,697	0	21,831	43,664	18,473
Total, 1st 30 insts.	3,933,418	3,602,783	3,245,189	2,919,985	396,598	1,118,150	2,241,835	176,835
31 Univ of Southern Cal	83,856	82,906	79,493	74,004	0	3,903	79,666	287
32 Pennsylvania State Univ	83,743	74,665	64,332	57,987	37,407	30,910	13,799	1,627
33 Univ of MD Balt Prof Sch	83,689	75,854	68,787	57,931	0	12,553	66,951	4,185
34 Louisiana State Univ	83,104	73,805	69,864	63,853	36,396	23,704	22,365	639
35 University of Iowa	82,386	78,000	68,474	56,492	0	22,498	58,626	1,262
36 University of Arizona	82,067	75,080	68,694	60,148	19,048	25,258	35,308	2,453
37 University of Florida	81,616	73,051	63,488	62,583	25,193	20,537	31,824	4,062
38 University of Chicago	79,769	74,047	66,881	60,372	0	28,992	49,984	793
39 Univ. of Colorado	75,398	72,885	64,560	57,596	0	26,781	45,307	3,310
40 Emory University	74,880	58,197	55,798	53,914	0	16,628	44,527	13,725
Total, 1st 40 insts.	4,743,926	4,341,273	3,915,560	3,524,865	514,642	1,329,914	2,690,192	209,178
41 Northwestern University	74,268	66,589	58,757	52,821	0	29,865	35,483	8,920
42 Michigan State University	73,035	73,509	70,977	70,842	44,216	20,567	7,602	650
43 University of Connecticut	72,266	69,134	56,117	54,443	5,171	28,660	37,888	547
44 N C State Univ at Raleigh	71,258	71,026	63,769	64,507	36,440	31,752	0	3,066
45 Univ. Of Tennessee System	68,976	70,417	56,972	55,325	21,314	9,043	37,266	1,353
46 University of Miami	68,395	67,952	52,146	47,240	0	16,371	51,930	94
47 Purdue University	66,601	60,119	54,592	51,815	21,867	34,342	9,354	1,038
48 SUNY at Buffalo	66,568	65,589	57,475	53,576	0	34,412	27,757	4,399
49 Iowa St U of Sci & Tech	65,403	56,107	46,918	41,546	28,453	26,160	6,182	4,608
50 Univ of Missouri Columbia	64,257	57,910	52,744	49,151	29,803	21,177	12,918	359
Total, 1st 50 insts.	5,434,953	4,999,625	4,486,027	4,066,131	701,906	1,582,263	2,916,572	234,212

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-58. R&D expenditures in the life sciences at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Institution ranking	Life sciences total[1]				1990 subfields			
	1990	1989	1988	1987	Agricultural sciences	Biological sciences	Medical sciences	Other
51 Univ of Med & Dent of N J	64,229	54,451	42,027	32,222	0	21,071	43,158	0
52 CUNY Mt Sinai Sch of Med	63,752	56,856	49,727	46,137	0	16,934	46,818	0
53 Rockefeller University	62,718	63,371	58,086	56,667	0	58,846	3,872	0
54 Case Western Reserve Univ	60,411E	54,525	47,891	45,114	0E	21,901E	38,510E	0E
55 Univ of Ill Chicago	59,462	58,061	50,315	41,913	0	22,588	34,917	1,957
56 Rutgers the St Univ of NJ	59,183	54,452	46,470	40,999	19,184	29,044	7,708	3,247
57 Virginia Commonwlth Univ	58,528	49,466	40,761	40,524	0	20,527	37,074	927
58 Vanderbilt University	57,246	48,996	45,549	30,650	0	28,932	27,906	408
59 Indiana University	55,502	48,378	41,979	37,444	0	15,469	38,275	1,758
60 University of Utah	55,460	49,974	46,648	43,372	0	19,310	35,543	607
Total, 1st 60 insts.	6,031,444	5,538,155	4,955,480	4,481,173	721,090	1,836,885	3,230,353	243,116
61 Univ of Nebraska-Lincoln	55,349	49,093	44,801	41,321	45,945	4,942	4,462	0
62 Univ of Massachusetts	54,677	66,542	50,167	42,855	8,385	19,039	21,047	6,206
63 Boston University	54,067	50,721	48,717	47,224	0	2,426	50,688	953
64 Univ of Cal Irvine	53,261	44,441	39,364	33,426	0	14,805	38,456	0
65 VA Polytech Inst & St U	52,477	47,777	42,579	37,011	34,642	13,090	3,614	1,131
66 University of Kentucky	51,789	49,192	45,811	44,088	27,305	1,202	21,254	2,028
67 University of Cincinnati	51,495	48,515	45,142	37,124	0	28,927	22,568	0
68 Oregon State University	51,442	51,915	50,103	47,643	27,105	14,968	2,063	7,306
69 University of Virginia	51,023	42,708	40,904	34,830	0	20,553	30,327	143
70 Univ of Ill Urbana	48,002	48,881	45,263	42,910	23,903	20,552	3,547	0
Total, 1st 70 insts.	6,555,026	6,037,934	5,412,331	4,889,605	888,375	1,977,389	3,428,379	260,883
71 Univ of Cal Riverside	47,431	45,750	44,836	43,796	41,103	4,113	2,215	0
72 Washington State Univ	46,456	38,711	37,423	37,218	21,761	21,736	2,119	840
73 Tulane University	46,411	38,787	34,718	30,271	0	4,803	20,413	21,195
74 U Tex Hlth Sci Ctr S Anto	45,663	42,501	39,673	34,476	0	16,753	28,910	0
75 U Tex Hlth Sci Ctr Houstn	44,345	44,893	41,649	33,701	0	15,412	25,535	3,398
76 Wayne State University	43,871	40,433	32,995	24,520	0	949	39,574	3,348
77 Georgetown University	41,120	43,272	35,828	28,011	0	12,112	29,008	0
78 U of VT & State Agr Coll	41,009	37,781	33,199	28,409	4,481	16,274	18,113	2,141
79 Auburn University	40,638	33,627	34,236	30,201	29,153	6,734	2,902	1,849
80 U Tex Med Brnch Galveston	40,610	38,717	33,047	24,351	0	12,589	17,868	10,153
Total, 1st 80 insts.	6,992,580	6,442,406	5,779,935	5,204,559	984,873	2,088,864	3,615,036	303,807
81 Univ of South Florida	40,589	31,204	31,902	30,801	0	1,232	39,271	86
82 SUNY at Stony Brook	40,081	38,408	40,172	36,096	0	20,585	17,233	2,263
83 Oregon Hlth Sciences Univ	40,070I	33,929	28,854	25,651	0I	10,519I	27,537I	1,614I
84 Wake Forest University	38,636	36,534	30,054	23,099	0	621	38,015	0
85 Mass Inst of Technology	37,711	34,322	34,755	32,844	0	37,711	0	0
86 Tufts University	37,300	40,168	43,514	36,694	4	30,544	5,625	1,127
87 Kans St U - Ag & App Sci	37,289	35,441	32,178	30,041	29,423	7,087	779	0
88 Temple University	37,121	34,089	30,135	27,545	0	23,491	13,618	12
89 Mississippi State Univ	36,357	35,502	31,618	28,187	33,358	2,390	607	5
90 Colorado State University	36,345	30,975	27,494	25,649	14,384	21,002	759	0
Total, 1st 90 insts.	7,374,079	6,792,978	6,110,611	5,491,166	1,062,242	2,244,046	3,758,880	308,911
91 Unif Serv Univ of Hlth Sc	36,080	27,062	15,991	12,076	0	5,243	30,837	0
92 SUNY Hlth Sci Ctr - Syrcs	35,193	31,125	24,541	21,186	0	10,570	24,623	0
93 Medical College of Wis	34,622	34,951	33,231	30,218	0	11,218	23,404	0
94 Clemson University	34,611	28,864	26,278	25,490	23,634	9,091	298	1,588
95 Dartmouth College	33,439E	28,579	25,037	21,983	0E	1,121E	32,318E	0E
96 University of Kansas	32,597	29,894	27,132	26,530	0	19,102	10,865	2,630
97 Oklahoma State University	32,289	29,247	26,868	24,398	22,355	8,611	1,278	45
98 Thomas Jefferson Univ	30,969	29,405	24,231	20,357	0	10,164	17,147	3,658
99 University of Oklahoma	27,424	24,853	23,088	19,473	0	9,352	16,173	1,899
100 Univ of P R-Mayaguez	27,165	26,522	23,822	23,823	26,967	198	0	0
Total, 1st 100 insts.	7,698,468	7,083,480	6,360,830	5,716,700	1,135,198	2,328,716	3,915,823	318,731

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-58. R&D expenditures in the life sciences at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Institution ranking	Life sciences total				1990 subfields			
	1990	1989	1988	1987	Agricultural sciences	Biological sciences	Medical sciences	Other
101 University of New Mexico	27,115	25,353	21,686E	19,676E	0	16,060	7,045	4,010
102 California Inst of Tech	24,857	23,012	20,964	18,398	0	24,857	0	0
103 Med Univ of So Carolina	23,128	23,017	20,949	19,658	0	8,055	14,884	189
104 SUNY Hlth Sci Ctr - Brkln	22,873	20,523	18,374	17,008	0	10,750	12,123	0
105 Univ of Hawaii-Manoa	22,662	20,602	19,951	18,342	8,866	7,332	1,009	5,455
106 University of Idaho	22,172	21,398	20,263	16,804	16,497	4,369	1,289	17
107 Univ of Ark Fayetteville	22,032	19,596	17,793	17,291	21,115	889	28	0
108 Utah State University	21,760	21,746	18,650	13,791	12,637	5,087	4,036	0
109 West Virginia University	20,625	21,601	18,044	16,848	10,225	3,663	4,709	2,028
110 Rush University	20,363	21,213	19,293	15,904	0	4,017	15,393	953
Total, 1st 110 insts.	7,926,055	7,301,541	6,556,797	5,890,420	1,204,538	2,413,795	3,976,339	331,383
111 New Mexico State Univ	19,797I	17,488	15,621	15,671	10,447I	8,179I	1,171I	0I
112 Univ of Texas at Austin	19,785	18,367	16,415	12,974	0	14,080	4,336	1,369
113 Univ of MD College Park	19,554	19,742	17,306	16,225	4,261	10,632	0	4,661
114 George Washington Univ	19,240	17,420	12,692	13,345	0	4,804	13,673	763
115 The Medical Col of Penna	18,643	20,542	15,277	11,081	0	8,618	10,025	0
116 Montana State University	18,593	17,204	17,056	15,910I	12,144	6,173	0	276
117 U of Neb Med Ctr at Omaha	17,844	17,291	14,684	12,492	0	11,786	6,058	0
118 Brown University	17,654	16,113	14,115	13,073	0	2,077	13,618	1,959
119 Princeton University	17,597	15,272	15,035	12,037	0	17,597	0	0
120 Univ of Alaska Fairbanks	17,454	15,080	13,260E	12,377I	7,341	10,113	0	0
Total, 1st 120 insts.	8,112,216	7,476,060	6,708,258	6,026,105	1,238,731	2,507,854	4,025,220	340,411
121 St Louis University	16,083	13,664	9,220	8,057I	0	8,342	7,712	29
122 Texas Tech University	15,486	15,597	12,875	12,677	6,993	3,459	4,999	35
123 Univ of South Carolina	15,119	12,659	10,356	9,406	0	3,856	9,934	1,329
124 University of Mississippi	14,649	13,904	12,735	10,784	0	6,547	8,102	0
125 Brandeis University	14,303	13,244	12,154	11,382I	0	14,303	0	0
126 Univ of Maine Orono	13,779	12,228	11,316	9,733	7,763	5,828	0	188
127 New York Medical College	13,244	12,958	13,817	11,794	0	7,878	5,366	0
128 Southern Ill U-Carbondale	12,853	12,260	11,049	9,439	2,017	4,788	5,615	433
129 University of Wyoming	12,216	12,352	11,578	10,433	7,082	4,216	918	0
130 Hahnemann University	12,134	10,428	8,222	8,756	0	4,204	7,548	382
Total, 1st 130 insts.	8,252,082	7,605,354	6,821,580	6,128,566	1,262,586	2,571,275	4,075,414	342,807
131 Medical Col of Georgia	12,052	11,363	9,925	10,053	0	6,405	5,379	268
132 University of Louisville	12,027	5,760I	7,548I	7,188I	0	4,649	6,339	1,039
133 U of Arkansas Med Sci Cam	11,898	10,834	9,851	8,094	0	3,679E	8,219E	0
134 Carnegie-Mellon Univ	11,400	11,008	10,741	9,997	0	11,400	0	0
135 Univ of Nevada - Reno	11,364	9,916	9,389	7,786	5,633	4,682	764	285
136 Eastern VA Medical School	10,496	8,125	6,614	4,320	0	2,951	7,545	0
137 Howard University	10,259I	10,078I	9,903I	9,720E	0I	3,071I	7,188I	0I
138 Loyola Univ - Chicago	10,236	9,299	6,578	5,627	0	6,026	4,210	0
139 Univ of South Alabama	10,229	9,774	7,974	7,195	0	7,711	2,205	313
140 Univ of Rhode Island	9,817	9,537I	9,449	5,623	1,866	1,906	4,572	1,473
Total, 1st 140 insts.	8,361,860	7,701,048	6,909,552	6,204,169	1,270,085	2,623,755	4,121,835	346,185
141 Albany Med Ctr Grad Sch	9,431	9,827	11,694	13,287	0	6,625	2,806	0
142 University of Delaware	9,093	8,884	7,981	7,172	7,472	1,621	0	0
143 San Diego State Univ	9,086	7,931	7,593	6,050	1,867	4,498	2,409	312
144 Creighton University	8,929	7,934	7,647	5,902I	0	0	8,929	0
145 SUNY Col of Env Sci & For	7,940	7,329	5,077	4,996	1,716	6,202	6	16
146 Florida State University	7,866	7,708	7,958	7,416	0	7,797	17	52
147 North Dakota State Univ	7,865	6,666	5,328	18,324E	5,651	2,073	141	0
148 South Dakota State Univ	7,699	6,888	6,753	6,516	6,104	932	26	637
149 Florida A & M University	7,539E	8,240	6,265	6,338	3,614E	3,925E	0	0
150 Loma Linda University	7,461	5,222	6,496	7,469E	0	3,124	4,254	83
Total, 1st 150 insts.	8,444,769	7,777,677	6,982,344	6,287,639	1,296,509	2,660,552	4,140,423	347,285
Total, all other sampled insts.	284,885	273,702	273,383	245,211	45,442	159,630	55,282	24,531
Estimated total non-sampled insts.	33,819	36,184	0	0	8,640	24,290	478	410

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-59. Federally financed R&D expenditures in the life sciences at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Institution ranking	Life sciences total				1990 subfields			
	1990	1989	1988	1987	Agricultural sciences	Biological sciences	Medical sciences	Other
Total, all institutions	5,067,946	4,779,911	4,318,061	3,829,866	348,133	1,832,765	2,667,710	219,340
1 Univ of Cal San Francisco	175,257	159,906	137,747	117,302	0	0	175,257	0
2 Johns Hopkins Univ	163,223	142,388	123,808	112,368	0	42,590	95,721	24,912
3 University of Washington	125,284	110,463	93,526	86,059	6,716	45,022	62,369	11,177
4 Yale University	116,188	109,353	100,762	90,885	212	48,294	67,682	0
5 Stanford University	110,547	104,921	95,226	85,590	01	8,1201	101,4811	9461
6 Univ of Cal Los Angeles	104,102	102,229	91,085	75,994	12	12,830	89,654	1,606
7 University of Michigan	103,528	95,794	90,958	75,441	147	38,605	58,116	6,660
8 Harvard University	102,593	92,840	86,976	79,708	0	58,242	44,351	0
9 Columbia Univ Main Div	97,783	86,763	80,221	76,779	0	41,967	55,816	0
10 University of Minnesota	97,634	96,625	88,316	79,860	9,423	23,464	49,199	15,548
Total, 1st 10 insts.	1,196,139	1,101,282	988,625	879,986	16,510	319,134	799,646	60,849
11 Univ of Pennsylvania	96,957	87,977	81,143	77,822	0	26,756	70,201	0
12 Washington University	93,531	84,052	76,786	66,897	0	38,686	52,455	2,390
13 Univ of Wis-Madison	93,184	88,857	84,190	77,949	10,407	28,145	53,593	1,039
14 Univ of Cal San Diego	90,706	82,372	75,956	68,352	0	10,348	80,358	0
15 Cornell University	84,922	79,348	72,294	67,323	8,624	20,642	51,396	4,260
16 Duke University	84,358	78,886	70,759	56,151	431	26,856	56,314	757
17 Baylor Col of Medicine	75,793	69,336	60,825	49,834	0	44,003	31,790	0
18 University of Pittsburgh	72,720	65,851	57,418	47,532	0	2,643	55,861	14,216
19 Univ Alabama Birmingham	72,524	66,448	60,781	53,164	0	22,248	49,556	720
20 Univ of NC at Chapel Hill	72,374	73,117	65,163	57,993	0	34,809	34,031	3,534
Total, 1st 20 insts.	2,033,208	1,877,526	1,693,940	1,503,003	35,972	574,270	1,335,201	87,765
21 University of Rochester	69,149	64,950	60,537	51,113	0	26,144	40,893	2,112
22 Yeshiva University	65,066	58,224	58,813	59,721	0	16,917	33,835	14,314
23 University of Chicago	64,416	60,430	54,530	49,684	0	25,517	38,733	166
24 Univ of Cal Davis	64,036	60,397	51,718	46,363	15,627	9,913	38,496	0
25 New York University	63,771	61,409	57,094	56,060	0	21,385	29,109	13,277
26 University of Iowa	58,187	57,204	49,428	42,690	0	15,575	42,321	291
27 Univ of Southern Cal	57,813	57,030	55,158	51,370	0	3,317	54,318	178
28 UT SW Medical Ctr-Dallas	54,965	51,254	48,357	45,382	0	25,586	29,379	0
29 Univ. of Colorado	54,616	54,135	45,937	39,791	0	20,709	31,875	2,032
30 Vanderbilt University	52,674	44,539	35,311	23,250	0	26,442	25,835	397
Total, 1st 30 insts.	2,637,901	2,447,098	2,210,823	1,968,427	51,599	765,775	1,699,995	120,532
31 Case Western Reserve Univ	50,890	47,224	39,975	36,101	0	18,414	32,476	0
32 SUNY at Buffalo	49,673	50,830	45,330	41,353	0	29,001	16,631	4,041
33 University of Miami	47,724	44,710	34,863	26,122	0	13,862	33,770	92
34 Emory University	47,700	42,675	40,124	33,447	0	13,486	21,868	12,346
35 Boston University	45,408	44,376	42,686	41,249	0	2,339	42,592	477
36 CUNY Mt Sinai Sch of Med	43,607	37,233	35,852	31,024	0	13,866	29,741	0
37 University of Utah	42,728	40,275	37,428	37,099	0	15,808	26,668	252
38 Ohio State University	42,665	40,523	33,563	27,367	8,816	17,028	14,620	2,201
39 Univ of Cal Berkeley	41,857	43,518	40,879	39,645	12,763	21,239	7,855	0
40 University of Arizona	39,626	37,351	34,344	30,253	3,731	14,602	19,747	1,546
Total, 1st 40 insts.	3,089,779	2,875,813	2,592,867	2,312,087	76,909	925,420	1,945,963	141,487
41 Virginia Commonwlth Univ	39,440	33,324	29,881	30,222	0	14,671	24,250	519
42 Univ of MD Balt Prof Sch	38,841	35,970	33,102	26,244	0	5,826	31,073	1,942
43 University of Florida	36,453	34,902	33,264	30,173	8,272	11,563	15,185	1,433
44 Pennsylvania State Univ	35,704	32,852	30,559	27,726	7,848	17,387	9,790	679
45 Northwestern University	34,869	33,207	31,652	28,715	0	20,389	13,168	1,312
46 University of Georgia	34,431	32,523	30,577	26,864	8,421	23,476	2,534	0
47 Univ of Cal Irvine	34,182	29,586	26,618	23,027	0	11,587	22,595	0
48 Indiana University	33,223	33,482	27,983	22,595	0	10,911	21,641	671
49 Univ of Med & Dent of N J	33,185	27,983	21,849	16,989	0	10,025	23,160	0
50 University of Cincinnati	32,820	30,550	27,067	23,479	0	20,148	12,672	0
Total, 1st 50 insts.	3,442,927	3,200,192	2,885,419	2,568,121	101,450	1,071,403	2,122,031	148,043

See explanatory information, if any, and SOURCE(S) at end of table.

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Table 8-59. Federally financed R&D expenditures in the life sciences at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Institution ranking	Life sciences total				1990 subfields			
	1990	1989	1988	1987	Agri-cultural sciences	Bio-logical sciences	Medical sciences	Other
51 Mass Inst of Technology	32,758	29,782	29,010	27,205	0	32,758	0	0
52 University of Connecticut	32,658	34,893	30,412	29,451	1,479	13,751	17,144	284
53 Univ of Ill Chicago	32,058	32,438	28,268	23,048	0	12,798	18,063	1,197
54 Rockefeller University	31,375	36,675	33,428	33,631	0	27,671	3,704	0
55 University of Virginia	30,665	26,963	26,394	23,745	0	14,893	15,724	48
56 Tufts University	30,518	33,168	35,216	30,760	4	25,476	4,039	999
57 Michigan State University	30,013	27,682	26,824	25,343	13,580	13,764	3,399	270
58 Univ of Massachusetts	29,848	31,249	25,985	21,944	1,479	13,780	11,652	2,937
59 Wake Forest University	29,671	28,334	22,896	18,596	0	382	29,289	0
60 U Tex Hlth Sci Ctr S Anto	29,431	29,324	27,528	22,469	0	12,058	17,373	0
Total, 1st 60 insts.	3,751,922	3,510,700	3,171,380	2,824,313	117,992	1,237,734	2,242,418	153,778
61 Georgetown University	29,137	29,642	24,368	18,995	0	9,817	19,320	0
62 Louisiana State Univ	28,599	26,177	23,203	19,257	1,128	12,154	14,732	585
63 Univ. Of Tennessee System	28,510	28,595	20,484	17,569	4,012	4,871	18,515	1,112
64 U of VT & State Agr Coll	28,017	25,864	23,105	20,428	1,612	12,998	12,373	1,034
65 U Tex Hlth Sci Ctr Houstn	27,835	28,089	26,355	23,358	0	10,843	14,692	2,300
66 SUNY at Stony Brook	27,702	25,910	28,081	19,541	0	15,840	10,974	888
67 Oregon Hlth Sciences Univ	26,154[1]	23,197	17,668	15,102	0[1]	8,032[1]	16,843[1]	1,279[1]
68 UT MD Anderson Cancer Ctr	25,982	25,870	24,161	19,852	0	13,493	12,489	0
69 Purdue University	25,697	23,975	22,404	20,138	3,575	15,518	5,808	796
70 Tulane University	24,894	22,147	20,539	17,941	0	2,792	9,663	12,439
Total, 1st 70 insts.	4,024,449	3,770,166	3,401,748	3,016,494	128,319	1,344,092	2,377,827	174,211
71 Wayne State University	23,079	21,744	17,680	12,414	0	545	21,001	1,533
72 Dartmouth College	22,735[1]	20,537	19,009	15,200	0[1]	747[1]	21,988[1]	0[1]
73 Colorado State University	22,459	20,906	19,144	17,578	7,073	15,031	355	0
74 Thomas Jefferson Univ	22,451	21,311	16,766	14,070	0	9,325	10,167	2,959
75 Univ of Ill Urbana	22,241	25,525	24,010	22,838	7,227	13,965	1,049	0
76 Oregon State University	21,948	21,400	21,394	22,273	8,225	7,476	761	5,486
77 U Tex Med Brnch Galveston	21,693	23,152	19,717	16,738	0	8,773	10,636	2,284
78 Medical College of Wis	21,594	21,432	19,803	15,551	0	6,996	14,598	0
79 University of Kentucky	21,041	19,399	20,760	20,269	7,790	766	12,404	81
80 Texas A & M University	20,262	22,469	24,628	17,549	5,533	12,804	1,835	90
Total, 1st 80 insts.	4,243,952	3,988,041	3,604,659	3,190,974	164,167	1,420,520	2,472,621	186,644
81 Temple University	19,551	20,920	18,164	16,039	0	13,552	5,999	0
82 Univ of Missouri Columbia	19,340	17,948	16,116	16,394	6,578	8,205	4,557	0
83 N C State Univ at Raleigh	19,244	18,937	17,302	17,652	7,802	9,280	0	2,162
84 California Inst of Tech	18,668	17,524	14,884	11,561	0	18,668	0	0
85 Washington State Univ	18,048	15,611	13,817	14,342	7,088	10,172	552	236
86 Iowa St U of Sci & Tech	16,825	14,476	11,419	10,347	8,509	6,407	469	1,440
87 Univ of Nebraska-Lincoln	16,259	18,552	17,612	17,566	14,965	473	821	0
88 George Washington Univ	15,728	14,279	10,269[E]	11,450	0	4,014	11,127	587
89 University of Kansas	15,184	15,951	15,651	12,748	0	10,200	4,079	905
90 SUNY Hlth Sci Ctr - Brkln	14,574	11,552	10,754	10,494	0	6,850	7,724	0
Total, 1st 90 insts.	4,417,373	4,153,791	3,750,647	3,329,567	209,109	1,508,341	2,507,949	191,974
91 Brown University	14,315	12,956	12,343	11,215	0	1,901	10,749	1,665
92 St Louis University	13,264	11,688	7,863	6,734[1]	0	7,489	5,768	7
93 VA Polytech Inst & St U	13,035	12,417	11,329	9,987	7,407	4,189	809	630
94 Rutgers the St Univ of NJ	12,821	11,762	9,374	9,351	2,941	6,847	2,842	191
95 Univ of P R-Mayaguez	11,759	12,003	10,638	8,187	11,561	198	0	0
96 The Medical Col of Penna	11,704	11,514	9,020	7,449	0	6,982	4,722	0
97 Unif Serv Univ of Hlth Sc	11,288	12,706	12,613	12,076	0	5,243	6,045	0
98 Princeton University	11,174	8,967	9,602	7,846	0	11,174	0	0
99 Med Univ of So Carolina	10,910	11,547	10,956	10,797	0	4,408	6,459	43
100 Brandeis University	10,549	10,685	10,181	9,348[1]	0	10,549	0	0
Total, 1st 100 insts.	4,538,192	4,270,036	3,854,566	3,422,557	231,018	1,567,321	2,545,343	194,510

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-59. Federally financed R&D expenditures in the life sciences at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Institution ranking	Life sciences total				1990 subfields			
	1990	1989	1988	1987	Agricultural sciences	Biological sciences	Medical sciences	Other
101 Univ of Cal Riverside	10,499	10,018	10,305	9,381	7,835	866	1,798	0
102 University of New Mexico	10,373	9,720	9,783	9,946	0	5,321	3,567	1,485
103 Utah State University	10,194	10,611	8,693	5,001	5,424	1,731	3,039	0
104 Univ of Texas at Austin	10,153	10,818	9,834	6,895	0	7,002	2,384	767
105 SUNY Hlth Sci Ctr - Syrcs	9,965	9,520	7,497	6,427	0	7,059	2,906	0
106 Mississippi State Univ	9,910	8,710	7,995	7,458	9,022	725	163	0
107 Kans St U - Ag & App Sci	9,392	9,602	8,822	8,230	6,304	2,952	136	0
108 University of Oklahoma	9,289	8,909	8,526	7,495	0	4,049	5,238	2
109 U of Neb Med Ctr at Omaha	9,078	8,572	7,765	7,243	0	6,583	2,495	0
110 New York Medical College	9,028	10,021	11,097	10,038	0	6,076	2,952	0
Total, 1st 110 insts.	4,636,073	4,366,537	3,944,883	3,500,671	259,603	1,609,685	2,570,021	196,764
111 University of Mississippi	8,947	8,551	7,836	6,731	0	4,937	4,010	0
112 Univ of Hawaii-Manoa	8,474	8,077	8,381	7,960	1,273	3,131	819	3,251
113 New Mexico State Univ	8,463I	7,066	5,228	5,778	3,588I	4,607I	268I	0I
114 Univ of South Carolina	8,328	7,403	6,380	5,840	0	2,431	5,471	426
115 West Virginia University	8,260	10,264	9,621	8,347	1,704	3,208	1,763	1,585
116 Medical Col of Georgia	8,045	7,392	7,621	7,705	0	5,688	2,281	76
117 Howard University	7,830I	7,277I	6,727I	6,174	0I	5,293I	5,537I	0I
118 Eastern VA Medical School	7,782	6,887	5,291	2,611	0	5,266	2,516	0
119 Hahnemann University	7,406	7,478	6,642	6,601	0	3,830	3,570	6
120 University of Idaho	7,246	6,980	6,588	5,669	4,820	1,907	519	0
Total, 1st 120 insts.	4,716,854	4,443,912	4,015,198	3,564,087	270,988	1,643,983	2,599,775	202,108
121 University of Louisville	7,006	3,756I	3,429I	2,849I	0	2,405	4,249	352
122 Florida A & M University	6,891E	7,692	6,265	6,338	2,976	3,915E	0	0
123 Univ of South Alabama	6,771	6,587	5,135	4,591	0	4,993	1,670	108
124 Auburn University	6,760	5,875	7,455	4,955	5,929	698	133	0
125 Oklahoma State University	6,754	7,307	7,188	4,735	3,682	2,993	62	17
126 Univ of Ark Fayetteville	6,754	5,466	5,080	5,048	6,609	138	7	0
127 U of Arkansas Med Sci Cam	6,654	5,258	5,846	4,561	0	3,300	3,354	0
128 Univ of Nevada - Reno	6,524	4,491	5,231	3,930	2,065	3,915	312	232
129 Meharry Medical College	6,391	6,397	5,125	4,414	0	5,192	1,199E	0
130 Univ of Alaska Fairbanks	6,324	5,435	4,779E	4,591I	1,921	4,403	0	0
Total, 1st 130 insts.	4,783,683	4,502,176	4,070,731	3,610,099	294,170	1,675,935	2,610,761	202,817
131 Univ of MD College Park	6,287	6,546	5,825	6,108	1,253	3,374	0	1,660
132 San Diego State Univ	6,263	5,844	5,721	4,490	1,854	2,818	1,575	16
133 Univ of South Florida	6,250	5,787	4,393	3,760	0	361	5,889	0
134 Albany Med Ctr Grad Sch	6,073	7,259	7,915	8,795	0	5,297	776	0
135 University of Wyoming	6,001	6,321	5,387	4,310	3,149	2,744	108	0
136 Med Col of Ohio at Toledo	5,956	5,855	4,530	5,756	0	4,873	1,083	0
137 Clemson University	5,838	5,001	6,032	3,862	3,588	1,972	100	178
138 Montana State University	5,816	4,834	7,249	5,568I	2,677	2,889	0	250
139 University of Oregon	5,803	4,876	4,278	3,804	0	5,581	0	222
140 Rush University	5,392	7,159	6,157	7,522	0	2,051	3,125	216
Total, 1st 140 insts.	4,843,362	4,561,658	4,128,218	3,664,074	306,691	1,707,895	2,623,417	205,359
141 Univ of P R-Med Sci Cmpus	5,366	5,235	4,218	5,389	0	0	5,366	0
142 Southern Ill U-Carbondale	5,303	4,462	4,205	3,244	518	2,936	1,798	51
143 Morehouse School of Med	5,149I	4,238	1,815	0	0I	5,149I	0I	0I
144 Loyola Univ - Chicago	4,814	4,695	3,513	3,005	0	3,228	1,586	0
145 Carnegie-Mellon Univ	4,625	4,838	5,496	4,075	0	4,625	0	0
146 Univ of Cal Santa Cruz	4,308	3,907	3,710	3,477	5	3,259	0	1,044
147 Univ of Maine Orono	4,305	3,984	4,109	3,343	1,556	2,623	0	126
148 Wright State University	4,238	2,780	2,350	1,869	0	745	3,492	1
149 University of N Dakota	4,127	4,004	3,116	3,380	0	301	1,074	2,752
150 North Dakota State Univ	4,044	3,399	2,374	2,556E	3,002	1,031	11	0
Total, 1st 150 insts.	4,889,641	4,603,200	4,163,124	3,694,412	311,772	1,731,792	2,636,744	209,333
Total, all other sampled insts.	165,477	163,226	154,937	135,454	35,537	89,279	30,895	9,766
Estimated total non-sampled insts.	12,828	13,485	0	0	824	11,694	71	241

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-60. Total and federally financed R&D expenditures in the agricultural sciences at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1990	1989	1988	1987	1990	1989	1988	1987
Total, all institutions	1,350,591	1,287,075	1,177,253	1,121,465	348,133	348,373	322,561	297,543
1 Univ of Cal Davis	92,153	86,517	72,084	72,576	15,627	16,339	13,983	15,867
2 University of Georgia	54,494	51,108	49,968	44,535	8,421	8,126	8,273	7,817
3 University of Minnesota	47,070	46,514	41,493	49,867	9,423	9,594	8,155	8,627
4 Univ of Cal Berkeley	46,886	42,221	35,351	35,159	12,763	12,085	10,889	11,151
5 Univ of Nebraska-Lincoln	45,945	41,360	38,586	36,188	14,965	17,131	15,860	16,302
6 Michigan State University	44,216	43,703	41,763	39,936	13,580	13,437	12,642	12,027
7 Cornell University	42,578	42,913	39,311	36,638	8,624	9,054	8,005	8,822
8 Univ of Cal Riverside	41,103	39,034	38,172	37,446	7,835	7,217	7,205	6,496
9 Texas A & M University	38,997	36,144	34,274	31,912	7,533	7,408	7,530	5,922
10 Pennsylvania State Univ	37,407	33,423	29,820	27,702	7,848	7,553	8,314	6,360
Total, 1st 10 insts.	490,849	462,937	420,822	411,959	104,619	107,944	100,856	99,391
11 N C State Univ at Raleigh	36,440	37,121	35,134	37,866	7,802	8,180	8,736	9,424
12 Louisiana State Univ	36,396	33,782	34,054	34,110	1,128	848	913	721
13 VA Polytech Inst & St U	34,642	30,851	24,233	21,159	7,407	7,210	5,745	4,459
14 Mississippi State Univ	33,358	32,292	28,112	25,220	9,022	7,893	7,036	6,567
15 Ohio State University	33,045	33,914	28,602	24,795	8,816	7,245	6,409	5,175
16 Univ of Missouri Columbia	29,803	27,265	22,719	19,964	6,578	6,483	5,772	4,751
17 Kans St U - Ag & App Sci	29,423	27,695	24,862	20,695	6,304	6,238	5,391	4,049
18 Auburn University	29,153	32,161	32,505	28,605	5,929	5,673	7,293	4,789
19 Iowa St U of Sci & Tech	28,453	26,045	21,244	17,331	8,509	8,287	5,221	3,967
20 Univ of Wis-Madison	28,087	22,312	21,431	19,253	10,407	8,646	8,514	8,212
Total, 1st 20 insts.	809,649	766,375	693,718	660,957	176,521	174,647	161,886	151,505
21 University of Kentucky	27,305	26,736	29,357	24,991	7,790	6,830	9,210	8,852
22 Oregon State University	27,105	30,270	28,264	27,952	8,225	8,326	7,644	10,866
23 Univ of P R-Mayaguez	26,967	26,440	23,785	22,933	11,561	11,949	10,610	7,630
24 University of Florida	25,193	22,480	20,025	18,974	8,272	8,125	7,519	7,258
25 Univ of Ill Urbana	23,903	23,176	22,036	20,706	7,227	8,019	7,389	7,096
26 Clemson University	23,634	20,098	17,692	16,899	3,588	3,144	3,680	2,285
27 Oklahoma State University	22,355	21,140	16,705	16,848	3,682	4,406	4,137	2,557
28 Purdue University	21,867	20,899	19,257	20,647	3,575	4,125	3,995	4,053
29 Washington State Univ	21,761	19,580	19,763	27,323	7,088	6,226	5,508	7,690
30 Univ. Of Tennessee System	21,314	21,974	20,108	18,577	4,012	3,841	3,992	3,788
Total, 1st 30 insts.	1,051,053	999,168	910,710	876,807	241,541	239,638	225,570	213,580
31 Univ of Ark Fayetteville	21,115	18,521	16,888	16,481	6,609	5,249	4,884	4,803
32 Rutgers the St Univ of NJ	19,184	15,832	14,785	13,910	2,941	2,618	2,622	3,191
33 University of Arizona	19,048	17,320	14,180	12,710	3,731	2,944	2,408	1,891
34 University of Idaho	16,497	16,366	16,690	13,882	4,820	4,906	4,998	4,545
35 Colorado State University	14,584	12,539	10,897	10,060	7,073	6,802	5,933	5,373
36 Utah State University	12,637	12,635	10,707	9,672	5,424	5,650	4,148	3,394
37 Montana State University	12,144	12,929	13,139	12,514I	2,677	2,834	5,082	3,863I
38 New Mexico State Univ	10,447I	9,302	8,993	8,725	3,588I	2,995	2,483	2,573
39 University of Washington	10,309	8,197	6,721	7,259	6,716	5,743	4,628	4,149
40 West Virginia University	10,225	7,256	6,848	6,505	1,704	3,573	3,594	3,517
Total, 1st 40 insts.	1,197,243	1,130,265	1,030,558	988,525	286,824	282,952	266,350	250,879
41 Univ of Hawaii-Manoa	8,866	8,018	7,379	7,041	1,273	1,316	998	803
42 Univ of Massachusetts	8,385	11,562	11,234	9,811	1,479	3,432	3,301	2,973
43 Univ of Maine Orono	7,763	7,063	6,201	5,949	1,556	1,452	1,416	1,334
44 University of Delaware	7,472	7,123	6,439	5,773	1,444	1,423	1,347	1,374
45 Univ of Alaska Fairbanks	7,341	7,538	6,628E	6,201I	1,921	2,239	1,969E	2,193I
46 University of Wyoming	7,082	7,206	7,184	6,581	3,149	3,225	3,270	2,511
47 Texas Tech University	6,993	6,929	5,594	5,883	709	604	536	168
48 South Dakota State Univ	6,104	5,532	5,353	5,349	2,197	1,876	1,810	1,697
49 North Dakota State Univ	5,651	4,573	2,942	6,221E	3,002	2,227	1,362	819E
50 Univ of Nevada - Reno	5,633	5,499	4,881	2,464	2,065	1,497	1,809	1,111
Total, 1st 50 insts.	1,268,533	1,201,308	1,094,393	1,049,798	305,619	302,243	284,168	265,862

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-60. Total and federally financed R&D expenditures in the agricultural sciences at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1990	1989	1988	1987	1990	1989	1988	1987
51 University of Connecticut	5,171	4,829	3,817	2,789	1,479	1,447	1,148	932
52 U of VT & State Agr Coll	4,481	4,097	3,997	3,384	1,612	1,500	1,451	1,506
53 Univ of MD College Park	4,261	4,326	4,359	4,417	1,253	1,065	1,133	1,218
54 Florida A & M University	3,614E	3,732	2,750	2,717	2,976	3,732	2,750	2,717
55 Univ of New Hampshire	3,385	3,044	3,082	2,983	1,246	1,226	1,475	1,292
56 Alabama A & M University	3,056	2,762	3,843	1,555	2,260	1,956	3,127	1,377
57 Southern U & A&M College	2,840	1,812	1,718	1,397	2,520	1,469	1,718	1,397
58 NC Ag & Tech State Univ	2,780	2,348	2,794	1,803	2,583	2,299	2,791	1,638
59 Prairie View A & M Univ	2,598	2,767	630E	588	2,510	2,670	600	558
60 Lincoln University	2,486	2,500E	NA	NA	2,315	2,424E	NA	NA
Total, 1st 60 insts.	1,303,205	1,233,525	1,121,383	1,071,431	326,373	322,064	300,361	278,497
61 University of Montana	2,373	2,076	2,191E	2,500	1,005	914	965E	1,000
62 Kentucky State University	2,163I	1,303	547	247	2,163I	1,303	547	247
63 Michigan Tech University	2,047	2,309	1,728	950	628	641	393	208
64 Southern Ill U-Carbondale	2,017	2,020	1,715	1,625	518	112	131	131
65 Texas A & I University	1,989	1,923	1,872	1,749I	219	225	320	296I
66 Alcorn State University	1,913	1,766	950I	889I	1,665	1,766	950I	889I
67 Virginia State University	1,886	2,093	1,882	1,702I	1,372	1,579	1,882	1,702I
68 Tuskegee University	1,880	1,713I	1,203	883	1,878	1,599I	1,141	837
69 San Diego State Univ	1,867	1,345	1,279	946	1,854	1,341	1,277	940
70 Univ of Rhode Island	1,866	5,591I	5,597	2,665	0	3,747I	3,922	2,230
Total, 1st 70 insts.	1,323,206	1,255,664	1,140,347	1,085,587	337,475	335,291	311,889	286,977
71 Duke University	1,740	993	1,135	978	431	440	430	505
72 SUNY Col of Env Sci & For	1,716	1,685	2,976	2,948	99	126	257	208
73 Tennessee State Univ	1,520	1,665	1,622	1,474	1,520	1,608	1,596	1,472
74 U of MD Eastern Shore	1,427	2,815	1,291	1,254	1,168	2,074	1,291	1,254
75 Langston University	1,200	2,349	NA	NA	1,200	1,961	NA	NA
76 Univ of Ark Pine Bluff	1,188	1,148	1,199	1,047	1,188	1,148	1,199	1,047
77 Yale University	1,063	1,234	930	767	212	378	344	224
78 Northern Arizona Univ	1,033	1,333	1,219	1,110	283	343	275	337
79 U of the Virgin Islands	1,011E	980	960	2,153E	995E	980	960	1,246E
80 Univ of Cal Santa Cruz	917	792	750	604	5	4	3	3
Total, 1st 80 insts.	1,336,021	1,270,658	1,152,429	1,097,922	344,576	344,252	318,244	293,273
81 Stephen F Austin St Univ	834	1,015	632	567	289	320	271	218
82 University of D C	831	760I	681	774	399	405I	409	338
83 Delaware State College	638	638	NA	NA	531	531	NA	NA
84 Cal Poly St U San Luis Ob	612	745	244	336I	70	67	61	48I
85 Brigham Young University	601	678I	565	470	202	82I	97	0
86 Southern Univ-New Orleans	432I	390E	NA	NA	382I	348E	NA	NA
87 Arkansas State University	381	355	189	192I	0	0	0	0I
88 Fort Valley State Univ.	268I	246E	NA	NA	249I	224E	NA	NA
89 Univ of Southwestern LA	214	283	265	272	8	60	81	13
90 Louisiana Tech University	186I	197E	142	193	161I	175E	126	116
Total, 1st 90 insts.	1,341,018	1,275,965	1,155,147	1,100,726	346,867	346,464	319,289	294,006
91 University of Michigan	153	0	0	265	147	0	0	215
92 Univ of Wis-Stevens Point	116	297	206	108I	67	115	72	31I
93 Arizona State University	111	0	0	0	15	0	0	0
94 Tougaloo College	108I	136E	NA	NA	88I	123E	NA	NA
95 Tenn Technological Univ	81	32	7	44	15	5	2	6
96 South Carolina St College	56I	120I	30	121	56I	120I	30	121
97 East Texas State Univ	52	27	11	38	0	0	0	0
98 Univ of Wis-River Falls	48	35	44	46I	18	5	2	6I
99 Sam Houston State Univ	40	47	16	7	13	34	6	0
100 West Texas State Univ	38	41I	36	52	2	17I	18	28
Total, 1st 100 insts.	1,341,821	1,276,700	1,155,497	1,101,298	347,288	346,883	319,419	294,304
Total, all other sampled insts.	130	1,277	21,756	20,167	21	457	3,142	3,239
Estimated total non-sampled insts.	8,640	9,098	0	0	824	1,033	0	0

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-61. Total and federally financed R&D expenditures in the biological sciences at universities and colleges: Fiscal years 1987-90

(Dollars in thousands)

Institution ranking	Total				Federally financed			
	1990	1989	1988	1987	1990	1989	1988	1987
Total, all institutions	2,844,472	2,629,966	2,387,569	2,132,774	1,832,765	1,726,766	1,594,451	1,411,778
1 Harvard University	68,950	66,372	62,859	59,156	58,242	56,338	54,706	53,048
2 Baylor Col of Medicine	68,716	57,948	37,362	31,076	44,003	28,427	26,762	22,217
3 Texas A & M University	63,850	64,365	61,696	57,577	12,804	14,150	14,008	7,594
4 Rockefeller University	58,846	59,636	54,486	53,368	27,671	33,054	31,756	31,564
5 Johns Hopkins Univ	57,474	51,837	47,864	43,639	42,590	39,742	37,732	36,007
6 Washington University	55,023	43,074	39,051	32,406	38,686	31,475	28,514	23,060
7 Yale University	54,898	52,842	50,462	45,351	48,294	46,848	43,894	38,601
8 University of Michigan	54,127	49,229	48,363	42,426	38,605	35,806	34,979	30,531
9 Univ of Wis-Madison	51,297	51,369	50,888	49,508	28,145	28,718	28,297	26,775
10 University of Washington	49,401	44,665	37,230	36,944	45,022	40,078	34,706	32,957
Total, 1st 10 insts.	582,582	541,337	490,261	451,451	384,062	354,636	335,354	302,354
11 Columbia Univ Main Div	47,751	37,100	35,267	30,344	41,967	33,581	31,150	26,640
12 Univ of NC at Chapel Hill	44,205	43,086	37,342	32,247	34,809	35,094	31,379	27,497
13 University of Georgia	42,588	39,347	39,293	35,569	23,476	21,809	20,180	17,614
14 Cornell University	39,731	41,361	38,797	35,742	20,642	20,244	19,639	17,008
15 UT MD Anderson Cancer Ctr	38,545	36,330	30,952	15,262	13,493	13,056	11,237	6,038
16 Mass Inst of Technology	37,711	32,049	34,451	33,585	32,758	29,509	28,744	26,913
17 UT SW Medical Ctr-Dallas	36,474	33,266	27,775	22,305	34,586	32,377	27,218	19,400
18 University of Minnesota	36,218	27,600	24,259	22,111	23,464	18,150	15,506	13,933
19 SUNY at Buffalo	34,412	35,895	34,008	31,632	29,001	30,670	29,182	26,795
20 Purdue University	34,342	30,724	28,728	25,582	15,518	14,614	14,470	12,896
Total, 1st 20 insts.	974,559	899,095	821,133	737,097	644,776	593,940	558,059	497,088
21 Ohio State University	32,314	30,304	26,383	22,213	17,028	16,783	14,031	12,000
22 N C State Univ at Raleigh	31,752	30,363	27,764	23,852	9,280	8,703	7,447	6,678
23 Univ of Pennsylvania	31,681	28,347	28,837	28,644	26,756	24,841	23,419	21,047
24 Univ Alabama Birmingham	31,192	24,851	21,972	18,399	22,248	19,295	17,531	15,365
25 Pennsylvania State Univ	30,910	29,238	23,536	21,140	17,387	17,120	14,762	14,719
26 Duke University	30,788	29,050	27,809	24,382	26,856	25,353	24,136	20,981
27 Tufts University	30,544	31,732	34,375E	28,988E	25,476	27,395	29,087E	25,411E
28 Northwestern University	29,865	27,298	25,616	20,255	20,389	19,046	18,026	14,350
29 University of Rochester	29,701	29,572	27,655	24,591	26,144	26,419	24,375	21,849
30 Univ of Cal Davis	29,489	26,719	24,768	23,651	9,913	9,536	9,271	8,793
Total, 1st 30 insts.	1,282,795	1,186,569	1,086,848	973,212	846,253	788,431	740,144	658,281
31 Rutgers the St Univ of NJ	29,044	27,706	24,230	23,120	6,847	6,588	5,511	5,361
32 University of Chicago	28,992	28,137	26,193	23,580	25,517	24,771	23,230	20,930
33 Vanderbilt University	28,932	23,110	21,507	13,195	26,442	21,140	17,206	10,550
34 University of Cincinnati	28,927	25,483	22,304	20,307	20,148	17,675	15,322	13,561
35 University of Connecticut	28,660	28,694	24,570	23,690	13,751	15,099	13,049	12,962
36 New York University	28,582	28,480	28,284	27,118	21,385	23,167	23,223	22,899
37 Univ of Cal Berkeley	27,161	29,188	27,936	25,083	21,239	23,780	22,935	20,456
38 Univ. of Colorado	26,781	28,028	26,441	23,030	20,709	22,405	20,811	19,217
39 Iowa St U of Sci & Tech	26,160	20,627	17,525	16,325	6,407	4,730	4,677	4,997
40 University of Arizona	25,258	23,099	21,264	19,428	14,602	13,187	12,997	11,962
Total, 1st 40 insts.	1,561,292	1,449,121	1,327,102	1,190,088	1,023,300	960,973	899,105	801,176
41 California Inst of Tech	24,857	23,012	20,964	18,398	18,668	17,524	14,884	11,561
42 Louisiana State Univ	23,704	21,399	19,492	16,165	12,154	12,263	10,814	8,411
43 Temple University	23,491	20,002	16,478	16,989	13,552	13,554	11,319	11,224
44 Univ of Ill Chicago	22,588	19,958	14,977	13,719	12,798	12,482	9,197	8,539
45 University of Iowa	22,498	21,356	18,289	15,123	15,575	15,522	13,120	10,781
46 Case Western Reserve Univ	21,901E	18,093	18,936	18,913	18,414	15,419	15,365	14,359
47 Yeshiva University	21,831	19,366	19,596	19,160	16,917	15,138	15,294	13,527
48 Washington State Univ	21,736	17,761	18,509	3,691	10,172	8,725	7,803	3,478
49 Univ of Missouri Columbia	21,177	19,471	19,205	18,624	8,205	7,641	6,864	7,757
50 Univ of Med & Dent of N J	21,071	13,126	11,792	10,192	10,025	9,331	8,585	7,525
Total, 1st 50 insts.	1,786,146	1,642,665	1,503,340	1,341,062	1,159,780	1,088,572	1,012,350	900,138

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-61. Total and federally financed R&D expenditures in the biological sciences at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1990	1989	1988	1987	1990	1989	1988	1987
51 Colorado State University	21,002	17,414	15,751	14,810	15,031	13,486	12,785	11,807
52 Univ of Cal Los Angeles	20,979	18,085	15,481	14,378	15,830	14,270	12,192	10,704
53 SUNY at Stony Brook	20,585	20,744	26,532	17,230	15,840	15,685	18,321	13,637
54 Michigan State University	20,567	21,130	21,517	21,479	12,764	11,034	11,586	10,667
55 University of Virginia	20,553	18,327	18,339	17,160	14,893	13,455	13,948	13,338
56 Univ of Ill Urbana	20,555	18,034	19,152	17,136	13,965	13,864	14,762	13,230
57 University of Florida	20,537	18,380	18,208	18,921	11,563	11,315	11,422	11,015
58 Virginia Commonwlth Univ	20,527	17,485	15,416	15,900	14,671	12,772	12,310	12,335
59 University of Utah	19,510	16,390	15,870	16,603	13,808	13,090	11,341	11,200
60 University of Kansas	19,102	19,093	16,997	11,159	10,200	10,751	10,472	6,060
Total, 1st 60 insts.	1,989,860	1,828,647	1,684,403	1,501,838	1,297,345	1,218,294	1,141,489	1,013,931
61 Univ of Massachusetts	19,039	24,226	16,644	14,444	13,780	14,597	11,705	10,157
62 Princeton University	17,597	15,272	15,035	12,037	11,174	8,967	9,602	7,846
63 CUNY Mt Sinai Sch of Med	16,934	14,118	11,757	10,955	13,866	11,045	7,813	8,480
64 U Tex Hlth Sci Ctr S Anto	16,753	16,338	15,094	13,152	12,058	12,033	11,309	9,455
65 Emory University	16,628	15,747	14,533	10,875	13,486	14,076	12,756	9,574
66 University of Miami	16,571	16,586	14,746	13,823	13,862	12,565	10,849	8,818
67 U of VT & State Agr Coll	16,274	15,783	13,851	11,629	13,998	13,400	11,179	9,502
68 University of New Mexico	16,060	15,621	15,440E	9,907E	5,321	5,368	4,708E	3,565
69 Indiana University	15,469	13,430	12,802	11,726	10,911	9,898	9,187	8,435
70 U Tex Hlth Sci Ctr Houstn	15,412	15,357	13,713	11,235	10,843	10,904	10,468	8,818
Total, 1st 70 insts.	2,156,397	1,991,125	1,825,018	1,621,621	1,415,644	1,330,147	1,241,065	1,098,579
71 Oregon State University	14,968	11,989	12,828	12,717	7,476	6,786	7,345	6,392
72 Univ of Cal Irvine	14,805	13,197	11,834	10,048E	11,587	10,054	9,277	8,025E
73 Brandeis University	14,303	13,244	12,154	9,024I	10,549	10,685	10,181	7,396I
74 Univ of Texas at Austin	14,080	13,147	12,393	10,457	7,002	7,672	7,558	5,768
75 VA Polytech Inst & St U	13,090	11,557	12,198	11,349	4,189	3,492	4,559	4,138
76 U Tex Med Brnch Galveston	12,589	13,022	10,964	7,618	8,773	9,654	8,233	6,314
77 Univ of MD Balt Prof Sch	12,553	11,378	10,318	8,689	5,826	5,395	4,965	3,937
78 Georgetown University	12,112	10,805	9,690	4,893	9,817	8,801	7,708	3,889
79 U of Neb Med Ctr at Omaha	11,786	12,241	10,610	9,654	6,583	6,872	6,278	6,124
80 Univ of Cal San Diego	11,405	10,850	9,512	8,142	10,348	9,828	8,778	7,419
Total, 1st 80 insts.	2,288,088	2,112,555	1,937,519	1,714,212	1,497,794	1,409,386	1,315,947	1,157,981
81 Carnegie-Mellon Univ	11,400	11,008	10,741	9,997	4,625	4,838	5,496	4,075
82 Medical College of Wis	11,218	12,439	11,546	9,074	6,996	7,628	9,396	6,666
83 SUNY Hlth Sci Ctr - Brkln	10,750	8,825	7,900	7,313	6,850	4,967	4,624	4,512
84 Univ of MD College Park	10,632	10,483	8,874	7,819	3,374	3,253	2,973	2,768
85 SUNY Hlth Sci Ctr - Syrcs	10,570	9,787	7,868	6,429	7,059	6,476	4,766	4,064
86 Stanford University	10,565I	9,841	9,593	8,917	8,120I	7,707	7,377	7,219
87 Oregon Hlth Sciences Univ	10,519I	9,042	7,016	7,083	8,032I	7,124	4,634	5,193
88 Thomas Jefferson Univ	10,164	10,250	7,231	6,186	9,325	9,554	5,131	4,447
89 Univ of Alaska Fairbanks	10,113	7,542	6,632E	5,922I	4,403	3,196	2,810E	2,341I
90 University of Oklahoma	9,352	9,882	9,881	7,686	4,049	5,079	5,014	3,922
Total, 1st 90 insts.	2,393,371	2,211,654	2,024,801	1,790,638	1,560,627	1,469,208	1,368,168	1,203,188
91 Clemson University	9,091	7,679	7,283	7,851	1,972	1,794	2,190	1,547
92 Univ. Of Tennessee System	9,043	9,450	6,974	4,927	4,871	5,853	4,256	3,151
93 The Medical Col of Penna	8,618	11,885	9,570	7,501	6,982	7,443	6,035	4,936
94 Oklahoma State University	8,611	7,628	9,800	7,442	2,993	2,764	2,936	2,108
95 St Louis University	8,342	7,517	5,025	5,022I	7,489	7,224	4,708	4,546I
96 New Mexico State Univ	8,179I	7,131	6,574	6,543	4,607I	3,847	2,720	3,205
97 Med Univ of So Carolina	8,055	9,685	9,858	9,725	4,408	5,461	5,548	6,194
98 New York Medical College	7,878	7,207	10,170	9,436	6,076	5,977E	8,555	8,071
99 Florida State University	7,797	7,273	7,562	6,847	3,224	3,623	3,764	2,983
100 Univ of South Alabama	7,711	7,133E	6,326	6,125	4,993	4,789	4,133	4,006
Total, 1st 100 insts.	2,476,696	2,294,242	2,103,943	1,862,057	1,608,242	1,517,983	1,413,013	1,243,935
Total, all other sampled insts.	343,486	310,993	283,626	270,717	212,829	198,125	181,438	167,843
Estimated total non-sampled insts.	24,290	24,731	0	0	11,694	10,658	0	0

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

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Table B-62. Total and federally financed R&D expenditures in the medical sciences at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1990	1989	1988	1987	1990	1989	1988	1987
Total, all institutions	4,196,183	3,843,241	3,387,734	3,015,867	2,667,710	2,506,673	2,214,392	1,963,335
1 Univ of Cal San Francisco	238,278	219,446	193,289	169,436	175,257	159,906	137,747	117,302
2 Univ of Cal Los Angeles	133,412	124,481	108,769	92,067	89,654	86,738	77,885	64,575
3 Stanford University	126,505I	118,151	106,870	93,380	101,481I	96,317	87,190	78,189
4 Johns Hopkins Univ	117,366	101,414	86,196	77,431	95,721	83,463	69,812	64,817
5 Univ of Pennsylvania	100,918	89,399	82,970	81,011	70,201	63,136	57,724	56,726
6 Univ of Cal San Diego	99,909	88,374	80,263	73,268	80,358	72,544	67,178	60,933
7 University of Minnesota	99,238	90,446	83,118	70,258	49,199	50,682	44,829	39,736
8 Univ of Wis-Madison	95,903	89,148	81,747	74,619	53,593	50,377	46,371	42,576
9 University of Michigan	93,805	80,901	67,275	56,703	58,116	52,164	46,292	36,328
10 Yale University	87,132	78,702	70,787	65,423	67,682	62,127	56,524	52,060
Total, 1st 10 insts.	1,192,466	1,080,462	961,284	853,596	841,262	777,454	691,552	613,242
11 Baylor Col of Medicine	86,406	76,733	69,452	59,103	31,790	40,909	34,063	27,617
12 Univ of Southern Cal	79,666	79,660	75,528	69,987	54,318	54,406	52,004	48,251
13 Duke University	77,747	72,150	61,542	45,058	56,314	52,698	45,785	34,292
14 University of Washington	77,129	69,679	58,163	56,106	62,369	56,405	47,678	43,868
15 Cornell University	75,376	71,381	63,148	67,009	51,396	46,499	40,226	41,493
16 Washington University	74,667	64,367	58,905	54,014	52,455	49,827	45,652	41,555
17 Univ Alabama Birmingham	71,806	69,179	57,677	49,177	49,556	47,029	44,607	37,012
18 University of Pittsburgh	67,811	63,720	55,823	43,613	55,861	50,766	43,763	35,460
19 Harvard University	67,571	61,399	53,628	44,743	44,351	36,502	32,270	26,660
20 Univ of MD Balt Prof Sch	66,951	60,683	55,030	46,346	31,073	28,776	26,482	20,995
Total, 1st 20 insts.	1,937,796	1,769,613	1,570,180	1,388,752	1,330,745	1,241,271	1,102,082	970,442
21 Columbia Univ Main Div	65,322	62,963	57,214	56,194	55,816	53,182	49,071	50,139
22 University of Iowa	58,626	55,552	49,106	40,605	42,321	41,372	36,050	31,771
23 Univ of Cal Davis	55,833	49,241	41,314	32,536	38,496	34,522	28,464	21,703
24 University of Rochester	51,965	46,758	43,594	36,532	40,893	36,567	33,851	27,114
25 University of Miami	51,930	51,234	37,333	33,338	33,770	32,082	24,011	17,302
26 Boston University	50,688	47,108	44,998	44,686	42,592	41,372	39,457	39,010
27 University of Chicago	49,984	45,718	40,535	36,723	38,733	35,651	31,300	28,754
28 UT SW Medical Ctr-Dallas	49,445	47,654	42,617	38,602	29,379	28,677	27,139	25,982
29 CUNY Mt Sinai Sch of Med	46,818	42,738	37,970	35,182	29,741	26,188	25,039	22,544
30 Univ. of Colorado	45,307	41,215	35,188	30,766	31,875	28,778	22,832	19,019
Total, 1st 30 insts.	2,463,714	2,259,794	2,000,049	1,773,916	1,714,361	1,599,662	1,419,296	1,253,780
31 UT MD Anderson Cancer Ctr	45,258	42,767	38,708	35,947	12,489	12,814	12,924	12,886
32 Emory University	44,527	31,253	29,123	33,025	21,868	18,264	17,119	15,101
33 Yeshiva University	43,664	38,733	39,193	38,320	33,835	30,277	30,588	31,055
34 Univ of Med & Dent of N J	43,158	41,325	30,235	22,030	23,160	18,652	13,264	9,464
35 Univ of NC at Chapel Hill	41,524	40,375	34,835	30,562	34,031	33,102	28,344	25,163
36 New York University	41,404	35,382	33,471	38,691	29,109	26,760	24,444	26,770
37 Wayne State University	39,574	37,980	31,145	22,611	21,001	20,658	16,935	11,584
38 Univ of South Florida	39,271	29,762	31,037	30,092	5,889	5,218	3,871	3,350
39 Case Western Reserve Univ	38,510E	36,432	28,863	26,201	32,476	31,805	24,523	21,742
40 Univ of Cal Irvine	38,456	31,244	27,530	23,378E	22,595	19,532	17,341	15,002E
Total, 1st 40 insts.	2,879,060	2,625,047	2,324,189	2,074,773	1,950,814	1,816,744	1,608,649	1,425,897
41 Indiana University	38,275	33,343	28,042	24,883	21,641	22,313	17,773	13,367
42 Wake Forest University	38,015	35,694	29,375	22,472	29,289	27,807	22,290	18,106
43 University of Connecticut	37,888	35,250	27,432	27,437	17,144	18,197	16,122	15,396
44 Univ. Of Tennessee System	37,266	37,990	29,200	30,970	18,515	17,992	11,621	9,902
45 Virginia Commonwith Univ	37,074	31,402	24,765	24,288	24,250	20,539	17,213	17,670
46 University of Utah	35,543	32,867	31,916	30,223	26,668	26,660	25,426	25,440
47 Northwestern University	35,483	32,282	30,005	29,052	13,168	12,397	12,885	13,472
48 University of Arizona	35,308	33,174	31,133	26,985	19,747	20,216	17,623	15,575
49 Univ of Ill Chicago	34,917	35,316	32,492	25,511	18,063	19,222	18,056	13,970
50 Dartmouth College	32,318E	27,702	24,232	21,170	21,988I	19,862	18,417	14,539
Total, 1st 50 insts.	3,241,147	2,960,067	2,612,781	2,337,764	2,161,287	2,021,949	1,786,075	1,583,334

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-62. Total and federally financed R&D expenditures in the medical sciences at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1990	1989	1988	1987	1990	1989	1988	1987
51 University of Florida	31,824	29,211	24,312	22,619	15,185	14,549	13,903	11,242
52 Unif Serv Univ of Hlth Sc	30,837	21,855	10,357	6,778	6,045	7,499	6,979	6,778
53 University of Virginia	30,327	24,044	22,258	17,334	15,724	13,298	12,206	10,148
54 Georgetown University	29,008	32,467	26,138	23,118	19,320	20,841	16,660	15,106
55 U Tex Hlth Sci Ctr S Anto	28,910	26,163	24,579	21,324	17,373	17,291	16,219	13,014
56 Oregon Hlth Sciences Univ	27,937I	23,493	20,728	17,447	16,843I	14,938	12,062	8,978
57 Vanderbilt University	27,906	25,415	22,880	14,385	25,835	22,946	17,195	10,295
58 SUNY at Buffalo	27,757	28,506	22,871	21,503	16,631	19,227	15,792	14,225
59 U Tex Hlth Sci Ctr Houstn	25,535	25,826	24,574	20,110	14,692	15,066	14,581	13,048
60 SUNY Hlth Sci Ctr - Syrcs	24,623	21,338	16,673	14,757	2,906	3,044	2,731	2,363
Total, 1st 60 insts.	3,525,811	3,218,385	2,828,151	2,517,139	2,311,841	2,170,648	1,914,403	1,688,531
61 Ohio State University	24,543	22,631	20,377	16,340	14,620	13,439	9,866	7,650
62 Medical College of Wis	23,404	22,512	21,685	21,144	14,598	13,804	10,407	8,885
63 University of Cincinnati	22,568	23,029	19,831	16,595	12,672	12,875	11,745	9,759
64 Louisiana State Univ	22,365	16,139	16,318	13,578	14,732	10,836	11,476	10,125
65 University of Kentucky	21,254	18,590	19,476	15,402	12,404	11,458	10,770	10,739
66 Univ of Massachusetts	21,047	28,120	20,454	17,456	11,652	11,859	10,037	8,428
67 Tulane University	20,413	16,991	15,202	13,154	9,663	7,531	6,922	5,499
68 U of VT & State Agr Coll	18,113	15,848	13,648	11,899	12,373	11,015	9,716	8,854
69 U Tex Med Brnch Galveston	17,868	18,305	15,600	10,986	10,636	11,241	9,513	8,412
70 SUNY at Stony Brook	17,233	16,364	13,582	8,517	10,974	10,223	9,760	5,895
Total, 1st 70 insts.	3,734,619	3,416,914	3,004,324	2,662,210	2,436,165	2,284,929	2,014,615	1,772,777
71 Thomas Jefferson Univ	17,147	17,961	15,191	12,177	10,167	10,579	10,456	8,350
72 University of Oklahoma	16,173	13,488	11,801	10,492	5,238	3,830	3,508	3,570
73 Rush University	15,393	16,233	13,822	11,056	3,125	4,158	3,243	4,672
74 Med Univ of So Carolina	14,884	13,123	11,038	9,754	6,459	5,990	5,407	4,603
75 University of Georgia	14,660	13,212	11,116	9,536	2,534	2,588	2,124	1,433
76 Univ of Cal Berkeley	13,809	12,459	9,157	10,215	7,855	7,653	7,055	8,038
77 Pennsylvania State Univ	13,799	11,335	10,300	8,930	9,790	8,098	7,333	6,560
78 George Washington Univ	13,673	13,628	12,242	9,727	11,127	11,237	10,179E	7,875
79 Brown University	13,618	12,798	11,012	9,638	10,749	9,966	9,456	8,089
80 Temple University	13,618	14,054	13,560	10,556	5,999	7,366	6,845	4,815
Total, 1st 80 insts.	3,881,393	3,555,205	3,123,563	2,764,291	2,509,208	2,356,394	2,080,221	1,830,782
81 Univ of Missouri Columbia	12,918	10,818	10,499	10,561	4,557	3,824	3,480	3,886
82 SUNY Hlth Sci Ctr - Brkln	12,123	11,698	10,474	9,695E	7,724	6,585	6,130	5,982
83 University of Kansas	10,865	7,596	8,140	12,922	4,079	3,631	3,446	5,380
84 The Medical Col of Penna	10,025	8,657	5,707	3,580	4,722	4,071	2,985	2,513
85 Univ of South Carolina	9,934	8,948	7,236	5,920	5,471	4,957	4,191	3,420
86 Purdue University	9,354	7,894	5,924	4,973	5,808	4,825	3,586	2,895
87 Creighton University	8,929	7,934	7,647	5,898I	2,405	2,386	1,828	1,514I
88 U of Arkansas Med Sci Cam	8,219E	7,484	6,766	5,699	3,354	2,580	3,257	2,691
89 University of Mississippi	8,102	7,943	7,819	6,862	4,010	3,972	3,844	3,562
90 St Louis University	7,712	5,981	3,975	2,946I	5,768	4,302	2,939	2,100I
Total, 1st 90 insts.	3,979,574	3,640,158	3,197,750	2,833,347	2,557,106	2,397,527	2,115,907	1,864,725
91 Rutgers the St Univ of NJ	7,708	6,238	4,134	1,619	2,842	2,399	1,197	694
92 Michigan State University	7,602	7,933	7,301	9,182	3,399	3,018	2,429	2,589
93 Hahnemann University	7,548	6,171	4,197	5,464	3,570	3,603	3,158	3,589
94 Eastern VA Medical School	7,545	5,298	4,551	2,842	5,516	4,726	3,874	1,640
95 Howard University	7,188I	7,049I	6,915I	6,774E	5,537I	5,146I	4,757I	4,366
96 University of New Mexico	7,045	5,789	6,102	9,607	3,567	3,107	3,281	6,365
97 University of Louisville	6,339	4,843I	6,344I	6,039I	4,249	3,160I	2,885I	2,397I
98 Univ of P R-Med Sci Cmpus	6,293	6,528	5,517	6,893	5,366	5,235	4,218	5,389
99 Iowa St U of Sci & Tech	6,182	5,353	4,681	3,907	469	521	411	345
100 U of Neb Med Ctr at Omaha	6,058	5,050	4,074	2,838	2,495	1,700	1,487	1,119
Total, 1st 100 insts.	4,049,082	3,700,410	3,251,566	2,888,512	2,594,116	2,430,142	2,143,604	1,893,218
Total, all other sampled insts.	146,623	140,827	136,168	127,355	73,523	74,737	70,788	70,117
Estimated total non-sampled insts.	478	2,004	0	0	71	1,794	0	0

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-63. Total and federally financed R&D expenditures in psychology at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1990	1989	1988	1987	1990	1989	1988	1987
Total, all institutions	259,555	238,033	214,063	187,957	169,380	156,559	140,951	124,286
1 Univ of Wis-Madison	8,553	8,843	7,653	7,492	6,876	7,336	6,419	6,136
2 Mass Inst of Technology	7,856	7,573	8,609	8,425	7,231	6,309	7,353	7,397
3 Univ of Southern Cal	7,527	5,098	3,984	3,537	5,227	3,659	2,748	2,484
4 Univ of Cal Los Angeles	6,681	6,694	8,403	7,936	4,782	5,369	6,035	6,618
5 Univ of Cal Berkeley	6,414	5,933	5,607	5,270	3,685	3,317	3,121	2,667
6 Rutgers the St Univ of NJ	6,198	5,202	4,708	3,850	6,593	6,285	6,644	1,675
7 University of Minnesota	6,042	6,283	5,222	4,690	3,966	3,953	3,754	3,182
8 Univ of Ill Urbana	5,532	5,420	5,091	4,997	3,447	3,381	3,078	2,978
9 University of Michigan	5,388	5,601	6,818	6,147	2,996	2,948	3,814	2,843
10 Univ. of Colorado	5,178	4,958	3,767	4,346	3,549	3,438	2,455	2,954
Total, 1st 10 insts.	65,369	61,605	59,862	56,690	44,348	41,995	42,021	38,934
11 University of Washington	5,097	4,553	3,324	3,023	4,664	4,218	3,088	2,588
12 Princeton University	5,015	4,528	4,408	3,206	2,387	2,377	2,176	2,088
13 Univ of MD College Park	4,994	4,773	4,148	3,512	1,194	1,380	1,170	868
14 University of Rochester	4,731	4,767	5,062	3,711	2,319	2,688	3,133	2,441
15 Pennsylvania State Univ	4,565	2,756	2,548	2,151	5,040	1,062	1,137	1,019
16 Carnegie-Mellon Univ	4,458	4,007	4,443	3,992	3,403	3,324	3,911	3,229
17 Stanford University	4,397I	4,081	3,834	3,583	3,186I	3,024	2,931	2,950
18 University of Georgia	3,656	3,668	2,857	2,504	1,137	1,419	910	684
19 New York University	3,605	3,703	3,205	3,311	3,316	3,591	3,014	2,975
20 Univ of Massachusetts	3,406	3,008	2,704	2,690	2,463	2,336	2,080	2,105
Total, 1st 20 insts.	109,293	101,449	96,392	88,373	70,457	67,414	65,571	59,881
21 Yale University	3,181	2,952	2,354	2,837	1,686	1,292	1,173	1,256
22 Florida State University	3,166	3,000	2,608	2,403	1,449	1,328	1,125	1,017
23 Memphis State University	3,139	3,029	2,505	1,649	974	1,064	573	402
24 Indiana University	3,089	2,795	2,658	2,365	2,174	2,281	2,192	1,934
25 Michigan State University	2,930	1,739	2,063	1,843	1,748	865	813	546
26 University of Connecticut	2,912	3,017	2,419	2,317	830	1,042	830	900
27 Cornell University	2,909	2,875	2,704	2,335	1,106	1,234	1,193	877
28 SUNY at Albany	2,797	2,894	2,696	1,937	2,321	2,471	2,121	1,640
29 SUNY at Buffalo	2,794	2,314	2,066	1,340	912	864	816	727
30 Univ of Cal Santa Barbara	2,789	2,936	2,719	2,837	2,075	2,180	2,002	2,201
Total, 1st 30 insts.	138,999	129,000	121,184	110,236	85,732	82,035	78,409	71,381
31 Univ of Cal San Diego	2,617	2,410	2,104	1,709	1,822	1,619	1,368	1,247
32 University of Dayton	2,453	3,075	1,645	53	2,446	2,562	1,364	45
33 University of Virginia	2,406	1,866	1,704	1,240	2,064	1,535	1,353	897
34 Univ of South Carolina	2,261	2,119	1,320	1,252	1,123	994	870	968
35 Univ of Texas at Austin	2,259	2,204	1,864	1,537	1,678	1,690	1,495	1,199
36 SUNY at Binghamton	2,186	1,714	1,389	1,219	782	663	446	322
37 Arizona State University	2,138	1,727	1,253	1,080	1,552	1,244	908	773
38 University of Florida	2,114	2,674	1,838	1,995	995	1,373	1,199	1,206
39 Harvard University	2,064	2,123	1,689	1,677	1,299	1,437	1,325	1,188
40 San Jose State University	1,910	883	1,250	635I	1,813	871	1,250	635I
Total, 1st 40 insts.	161,407	149,795	137,240	122,633	101,306	96,023	89,987	79,861
41 Vanderbilt University	1,744	1,507	1,521	1,602	1,433	1,040	1,128	1,188
42 Georgia Institute of Tech	1,696	2,891	2,825	1,415	956	1,623	1,686	742
43 Georgia State University	1,626	1,005	914	870	517	354	284	319
44 Colorado State University	1,607	1,243	824	411	1,556	1,114	742	393
45 U of Houston	1,584	1,347	954	580	907	692	356	280
46 University of Pittsburgh	1,583	1,151	626	593	1,456	1,017	566	490
47 Duke University	1,558	1,326	1,330	1,228	1,471	1,245	1,124	1,068
48 University of Oregon	1,552	1,405	1,101	1,083	1,274	1,153	942	868
49 Brown University	1,550	1,136	1,232	1,133	1,301	994	1,153	1,072
50 Univ of Pennsylvania	1,546	1,570	1,306	1,213	1,357	1,570	1,306	1,137
Total, 1st 50 insts.	177,453	164,376	149,873	132,761	113,534	106,825	99,274	87,418

See explanatory information, if any, and SOURCE(S) at end of table.

Table 8-63. Total and federally financed R&D expenditures in psychology at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1990	1989	1988	1987	1990	1989	1988	1987
51 Purdue University	1,521	1,727	1,809	1,322	1,183	1,252	1,351	944
52 Hahnemann University	1,461	730	329	306	838	331	176	191
53 University of Kansas	1,426	1,086	999	814	764	671	645	540
54 University of Miami	1,419	1,245	1,159	1,008	1,269	1,160	965	823
55 Cal Sch Prof Psych-Fresno	1,382	1,922	1,015	535	985	1,566	940	476
56 Johns Hopkins Univ	1,368	1,193	1,575	1,492	1,162	1,035	1,246	1,236
57 Univ of South Florida	1,358	1,438	1,173	593	655	892	810	405
58 Oregon Hlth Sciences Univ	1,350I	1,168	655	411	1,087I	965	572	277
59 San Diego State Univ	1,349	813	783	672	1,087	382	271	327
60 Cal Sch Prof Psych-L A	1,316	1,551	616	500	1,163	1,383	322	164
Total, 1st 60 insts.	191,403	177,249	159,986	140,414	123,727	116,462	106,572	92,801
61 Univ. Of Tennessee System	1,310	660	575	675	338	363	328	484
62 Columbia Univ Main Div	1,261	1,338	1,086	859	1,149	1,204	965	759
63 U of VT & State Agr Coll	1,246	1,381	674	625	1,002	1,048	412	420
64 Temple University	1,242	912	210	203	565	439	56	55
65 Brandeis University	1,224	1,283	1,309	1,052I	1,086	1,090	1,262	908I
66 VA Polytech Inst & St U	1,209	705	964	456	664	366	224	169
67 SUNY at Stony Brook	1,050	1,001	992	937	849	511	685	881
68 University of Denver	1,043	1,077	1,310	1,598	750	896	1,152	1,296
69 Washington University	1,036	754	672	534	704	543	486	276
70 Univ of NC at Chapel Hill	1,013	808	648	490	939	722	566	429
Total, 1st 70 insts.	203,037	187,168	168,426	147,843	131,773	123,644	112,708	98,478
71 University of Iowa	1,009	1,269	1,634	1,435	542	583	761	926
72 University of Chicago	1,008	967	1,085	1,068	704	713	771	735
73 Northwestern University	981	792	994	1,158	767	708	869	978
74 Loyola Univ - Chicago	944	839	1,083	926	600	585	579	495
75 Univ of Rhode Island	943	626I	636	652	806	482I	505	522
76 Univ of Missouri Columbia	927	1,461	1,188	915	492	507	487	332
77 Rush University	921	528	534	438	691	423	396	301
78 Seton Hall University	874I	829I	761I	689I	874I	829I	761I	689I
79 Texas Christian Univ	854	194	90	111	831	177	78	103
80 Tufts University	854	774	1,978	2,016	749	620	1,254	1,419
Total, 1st 80 insts.	212,352	195,447	178,409	157,251	138,829	129,271	119,169	104,978
81 CUNY Hunter College	845	997	771	716	744	780	539	521
82 The University of Alabama	831	651	723	739	279	288	366	413
83 Louisiana State Univ	795	1,141	1,172	708	390	238	336	190
84 CUNY Grad Sch & Univ Ctr	774	1,238	606	288	319	730	366	71
85 Wayne State University	716	915	789	840	465	624	583	564
86 Texas A & M University	686	860	807	439	310	535	628	305
87 Northern Arizona Univ	650	458	469	495	612	448	469	445
88 University of Arizona	626	301	383	168	469	180	247	58
89 Virginia Commonwlth Univ	626	345	257	93	489	252	147	25
90 Northeastern University	618	618	773	558	460	525	657	517
Total, 1st 90 insts.	219,519	202,971	185,159	162,295	143,366	133,871	123,507	108,087
91 University of Utah	614	687	629	347	488	424	450	228
92 De Paul University	612	533	403I	173	433	473	400I	161
93 University of Delaware	592	921	927	900	385	778	730	752
94 Catholic Univ of America	586	667	529	194	586	638	490	153
95 Univ Alabama Birmingham	574	638	699	560	378	502	643	542
96 Florida Atlantic Univ	565	493	424	233	528	393	289	27
97 Coppin State College	562	534	NA	NA	233	245	NA	NA
98 Columbia U Teachers Col	556	382	396	224	142	211	186	179
99 University of New Mexico	552	782	631	482	418	678	531	395
100 Iowa St U of Sci & Tech	541	617	883	1,119	10	124	337	471
Total, 1st 100 insts.	225,273	209,225	190,680	166,527	146,967	138,337	127,563	110,995
Total, all other sampled insts.	24,988	22,143	23,383	21,430	14,882	13,003	13,388	13,291
Estimated total non-sampled insts.	9,294	6,665	0	0	7,531	5,219	0	0

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

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Table B-64. R&D expenditures in the social sciences at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Institution ranking	Social sciences total				1990 subfields			
	1990	1989	1988	1987	Economics	Political science	Sociology	Other
Total, all institutions	702,175	636,613	553,156	502,172	203,191	111,545	134,010	253,429
1 Harvard University	39,668	40,675	36,429	30,860	20,028	14,986	474	4,180
2 University of Michigan	39,203	36,860	31,552	31,592	11,358	5,741	8,314	13,790
3 Univ of Wis-Madison	22,661	19,571	19,948	17,708	8,066	1,818	5,005	7,772
4 Univ of Cal Berkeley	19,550	16,595	15,195	13,664	79	9,045	2,341	8,085
5 University of Georgia	18,538	17,580	13,108	13,672	8,797	1,042	1,293	7,406
6 Univ of MD College Park	16,641	13,900	13,060	11,864	4,113	3,080	2,792	6,657
7 Univ of Cal Los Angeles	15,530	13,559	15,213	13,986	417	225	1,025	13,863
8 Univ of Texas at Austin	15,335	13,882	9,977	8,768	3,515	7,211	2,624	1,985
9 Univ of Pennsylvania	14,956	16,267	10,207	11,914	4,329	763	2,929	7,635
10 Rutgers the St Univ of NJ	13,005	11,285	9,379	8,402	963	5,921	3,567	2,554
Total, 1st 10 insts.	215,087	200,174	176,068	162,430	61,664	49,832	29,664	73,927
11 Ohio State University	12,383	13,197	7,882	3,776	3,886	906	616	6,975
12 Cornell University	12,049	10,414	9,724	9,058	4,699	129	1,969	5,256
13 University of Minnesota	11,245	8,455	7,332	7,340	5,353	2,635	1,113	2,144
14 Brandeis University	11,061	11,456	9,100	7,1541	204	142	10,535	180
15 Johns Hopkins Univ	10,767	10,258	9,141	6,872	3,112	300	5,084	2,271
16 Univ of Ill Urbana	10,244	7,332	6,992	8,076	3,577	1,673	216	4,778
17 Univ of NC at Chapel Hill	10,193	10,316	9,231	7,758	55	0	2,850	7,288
18 Princeton University	9,704	8,242	6,693	5,870	1,851	6,128	1,033	692
19 Texas A & M University	9,329	10,912	11,044	10,291	5,615	174	1,923	1,617
20 Pennsylvania State Univ	8,943	7,766	6,847	6,102	3,474	1,084	2,464	1,921
Total, 1st 20 insts.	321,005	298,522	260,054	234,727	93,486	63,003	57,467	107,049
21 Washington State Univ	8,237	7,581	5,262	1,102	4,797	120	2,433	887
22 University of Arizona	7,944	7,394	7,366	7,187	3,992	58	43	3,851
23 Temple University	7,688	6,675	7,468	5,025	129	961	6,598	0
24 Duke University	7,048	8,310	6,575	3,242	2,481	1,365	2,586	616
25 Oklahoma State University	6,866	6,076	8,219	7,744	4,682	175	509	1,500
26 Arizona State University	6,797	4,440	3,078	2,576	805	265	202	5,525
27 Florida State University	6,785	5,939	3,302	4,829	763	984	835	4,206
28 VA Polytech Inst & St U	6,682	4,588	3,940	3,745	2,482	455	282	3,463
29 Michigan State University	6,622	5,105	4,876	4,862	4,717	152	29	1,724
30 Purdue University	6,607	6,553	6,479	5,421	5,370	66	683	488
Total, 1st 30 insts.	392,281	361,183	318,619	280,460	123,704	67,604	71,664	129,309
31 Iowa St U of Sci & Tech	6,289	5,564	3,478	3,027	3,168	292	2,728	101
32 Colorado State University	6,092	4,687	3,767	3,393	1,347	209	577	3,959
33 Univ. Of Tennessee System	5,698	5,387	4,326	3,247	3,627	843	927	301
34 Univ of Missouri Columbia	5,694	4,230	3,894	4,012	3,275	204	1,914	301
35 Univ of South Carolina	5,343	5,638	4,392	3,982	1,324	1,048	1,488	1,483
36 Georgia Institute of Tech	5,246	4,105	1,840	2,452	4,049	104	1,093	0
37 Columbia Univ Main Div	5,117	6,569	3,557	3,748	984	852	2,997	284
38 University of Oklahoma	4,995	3,765	3,215	3,067	1,143	606	111	3,135
39 University of Washington	4,921	4,286	3,573	3,147	15	1,400	200	3,306
40 Clemson University	4,888	4,584	3,382	3,163	2,767	1,472	51	598
Total, 1st 40 insts.	446,564	409,998	354,043	313,698	145,403	74,634	83,750	142,777
41 Univ of Cal Santa Barbara	4,816	2,942	2,972	3,401	1,290	38	732	2,756
42 Univ of Massachusetts	4,680	3,441	2,996	2,963	80	332	924	3,344
43 Mass Inst of Technology	4,645	5,109	4,857	5,624	1,655	827	0	2,163
44 Texas Tech University	4,620	4,016	4,084	3,381	1,755	611	1,892	362
45 University of Virginia	4,555	2,660	2,487	2,342	319	4,020	139	37
46 New York University	4,532	3,334	3,566	2,856	1,224	1,947	92	1,269
47 Florida A & M University	4,450	3,640	5,026	2,322	656	344E	1,248E	2,202E
48 SUNY at Buffalo	4,421	2,849	786	487	40	77	481	3,823
49 University of Pittsburgh	4,246	6,006	4,128	2,912	461	827	134	2,824
50 SUNY at Albany	4,211	3,966	3,038	2,959	81	570	770	2,790
Total, 1st 50 insts.	491,720	449,961	387,983	342,945	152,964	84,227	90,162	164,367

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-64. R&D expenditures in the social sciences at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Institution ranking	Social sciences total				1990 subfields			
	1990	1989	1988	1987	Economics	Political science	Sociology	Other
51 Univ. of Colorado	4,208	2,629	2,741	1,938	1,060	251	1,622	1,275
52 University of Chicago	4,079	3,549	3,275	3,305	229	945	405	2,500
53 Louisiana State Univ	4,036	5,757	5,510	5,313	2,836	191	581	428
54 Cleveland State Univ	3,893	3,072	3,160	2,734	10	5	1,401	2,477
55 Tulane University	3,840	889	829	846	820	12	18	2,990
56 N C State Univ at Raleigh	3,790	2,377	2,638	2,675	2,724	105	957	7
57 Univ of Cal Irvine	3,666	3,356	3,128	2,824	0	1,417	607	1,642
58 Carnegie-Mellon Univ	3,412	3,074	2,554	3,009	945	889	1,578	0
59 Univ of Southern Cal	3,399	2,926	2,094	1,608	242	632	2,003	522
60 Georgetown University	3,389	4,824	4,311	4,925	115	223	1,619	1,432
Total, 1st 60 insts.	529,432	482,314	418,223	372,122	161,945	88,894	100,953	177,640
61 Mississippi State Univ	3,350	2,906	2,757	2,406	1,680	112	787	771
62 Univ of Ill Chicago	3,309	2,292	2,062	2,018	107	47	20	3,135
63 University of Florida	3,300	2,188	2,281	2,022	513	168	378	2,241
64 SUNY at Stony Brook	3,197	2,594	2,075	1,775	228	792	196	1,981
65 Case Western Reserve Univ	3,188E	2,595	2,854	2,323	1,326E	0I	215E	1,647E
66 Syracuse University	3,183	2,703	3,129	3,680	233	909	125	1,916
67 Univ of Hawaii-Manoa	3,157	2,764	2,627	2,358	787	61	194	2,115
68 University of Connecticut	3,025	3,199	2,894	2,419	135	58	364	2,468
69 Univ of Alaska Fairbanks	2,985	2,106	1,852E	2,350I	74	35	1,159	1,717
70 Indiana University	2,943	3,075	2,754	1,856	221	663	561	1,498
Total, 1st 70 insts.	561,069	508,736	442,308	395,329	167,249	91,739	104,952	197,129
71 Stanford University	2,932I	2,679	2,442	1,795	230I	123I	345I	2,234I
72 George Mason University	2,926	982	807	595E	2,145	395	380	6
73 University of Iowa	2,893	2,404	1,930	2,300	454	207	753	1,479
74 SUNY at Binghamton	2,856	2,322	2,176	1,879	177	376	1,288	1,015
75 Univ of Nebraska-Lincoln	2,774	2,651	1,291	1,764	1,966	235	409	164
76 Northern Illinois Univ	2,769I	2,286	2,148	1,304E	0I	32I	68I	2,669I
77 The University of Alabama	2,762	2,338	1,932	1,753	1,530	626	459	147
78 US Naval Postgrad School	2,748	3,031	2,860	2,112	268	639	1,841	0
79 University of Delaware	2,705	1,344	1,473	1,294	154	32	901	1,618
80 Yale University	2,660	2,801	2,955	3,375	1,488	54	80	1,038
Total, 1st 80 insts.	589,094	531,974	462,322	413,500	175,661	94,458	111,476	207,499
81 Univ of Wis-Milwaukee	2,472	2,632	2,096	1,761	156	98	319	1,899
82 Emory University	2,465	1,922	1,234	1,528	1	2,137	6	321
83 Oregon State University	2,300	2,299	2,152	2,064	1,393	0	675	232
84 Univ of Cal San Diego	2,110	1,770	1,732	1,391	379	719	57	955
85 Univ of Ark Fayetteville	2,062	1,721	1,492	1,418	48	202	52	1,760
86 University of New Mexico	2,001	1,484	1,433	1,544	167	171	354	1,309
87 Univ of Cal Davis	1,924	1,589	1,538	1,166	61	1,243	169	451
88 University of Idaho	1,848	1,549	1,571	1,282	1,404	26	409	9
89 Northwestern University	1,809	1,227	930	1,004	525	445	141	698
90 University of Miami	1,808	1,531	490	405	88	0	342	1,378
Total, 1st 90 insts.	609,893	549,698	476,990	427,063	179,883	99,499	114,000	216,511
91 Memphis State University	1,756	1,177	896	772	597	32	563	564
92 Desert Research Institute	1,680	1,643	1,372	807	0	0	0	1,680
93 American University	1,676	1,119	1,093	661	219	760	0	697
94 Illinois State University	1,663	1,573	1,637	1,475	17	18	0	1,628
95 Kans St U - Ag & App Sci	1,652	1,693	1,464	1,503	1,242	29	231	150
96 Boston University	1,636	1,460	957	457	831	0	3	802
97 Wayne State University	1,597	1,067	1,059	1,578	247	109	46	1,195
98 Vanderbilt University	1,561	1,182	1,343	1,898	26	1,186	110	239
99 Univ of Rhode Island	1,553	609I	579	1,096	1,508	0	45	0
100 Virginia Commonwlth Univ	1,533	751	824	540	32	581	21	899
Total, 1st 100 insts.	626,200	561,972	488,414	437,850	184,602	102,214	115,019	224,365
Total, all other sampled insts.	67,134	65,189	64,742	64,322	16,469	8,425	17,299	24,941
Estimated total non-sampled insts.	8,841	9,452	0	0	2,120	906	1,692	4,123

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-65. Federally financed R&D expenditures in the social sciences at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Institution ranking	Social sciences total				1990 subfields			
	1990	1989	1988	1987	Economics	Political science	Sociology	Other
Total, all institutions	225,434	211,244	188,395	168,258	54,469	24,896	59,769	86,300
1 University of Michigan	12,745	15,829	13,050	13,835	7,222	1,710	2,562	1,251
2 Harvard University	12,313	14,527	12,956	10,302	2,957	6,288	399	2,672
3 Univ of Wis-Madison	10,311	9,899	11,476	9,097	5,804	539	2,970	4,298
4 Ohio State University	8,913	8,857	5,066	1,908	2,282	226	203	6,202
5 Univ of Cal Berkeley	6,224	5,518	5,584	4,446	28	1,720	1,042	3,434
6 Univ of NC at Chapel Hill	5,721	5,794	4,945	3,965	52	0	2,102	3,567
7 Johns Hopkins Univ	5,274	6,036	5,571	5,460	110	120	4,203	841
8 Temple University	4,597	2,568	881	576	0	98	4,499	0
9 Rutgers the St Univ of NJ	4,437	3,334	3,408	3,500	55	1,611	1,224	1,547
10 University of Minnesota	3,877	3,025	2,227	1,501	1,865	148	682	1,182
Total, 1st 10 insts.	74,415	75,387	65,164	54,590	17,375	12,160	19,886	24,994
11 Duke University	3,876	4,531	3,778	1,406	1,215	64	2,388	209
12 Brandeis University	3,870	3,859	3,685	3,472	93	60	3,638	79
13 Univ of Pennsylvania	3,287	4,052	4,688	4,821	936	311	1,106	934
14 Univ of Texas at Austin	3,269	3,467	1,712	1,343	754	954	1,354	207
15 Michigan State University	3,089	2,027	2,134	2,262	2,797	79	13	200
16 SUNY at Albany	3,075	2,782	2,005	1,676	0	45	483	2,547
17 Colorado State University	3,074	2,190	1,812	1,697	811	141	465	1,657
18 Pennsylvania State Univ	2,996	2,091	2,177	2,069	1,186	34	801	975
19 Georgia Institute of Tech	2,959	2,304	932	1,288	2,283	59	617	0
20 Univ of Ill Urbana	2,922	2,414	2,169	2,491	703	485	132	1,602
Total, 1st 20 insts.	106,832	105,104	90,256	77,115	28,153	14,392	30,883	33,404
21 University of Washington	2,919	2,857	2,432	2,145	5	120	87	2,707
22 Univ of Cal Santa Barbara	2,895	1,279	1,255	1,361	437	0	301	2,157
23 US Naval Postgrad School	2,748	3,031	2,860	2,112	268	639	1,841	0
24 Univ. of Colorado	2,672	1,513	1,899	1,364	467	112	1,243	850
25 Florida A & M University	2,642	1,268	1,850	1,097	605	0	0	2,037
26 Univ of Cal Los Angeles	2,605	2,563	2,427	1,862	171	27	478	1,929
27 Univ of MD College Park	2,574	1,479	1,355	1,240	186	248	90	2,050
28 Columbia Univ Main Div	2,534	4,134	1,512	1,720	259	89	1,909	277
29 Georgetown University	2,372	3,365	2,847	3,068	69	25	1,171	1,107
30 VA Polytech Inst & St U	2,200	1,225	1,889	1,557	441	47	140	1,572
Total, 1st 30 insts.	132,993	127,818	110,582	94,641	31,061	15,699	38,143	48,090
31 Arizona State University	2,076	487	468	318	43	86	0	1,947
32 Texas Tech University	1,977	1,659	2,520	2,046	598	184	1,150	45
33 Washington State Univ	1,942	1,994	1,803	338	1,502	0	66	374
34 Cornell University	1,880	2,047	1,684	1,659	858	24	369	629
35 Carnegie-Mellon Univ	1,863	1,754	1,711	1,861	621	602	640	0
36 Tulane University	1,835	287	216	297	0	8	12	1,815
37 Iowa St U of Sci & Tech	1,792	1,693	409	739	701	0	1,069	22
38 University of Arizona	1,687	1,830	1,730	2,082	836	22	17	812
39 Texas A & M University	1,639	2,188	1,889	1,004	759	36	440	404
40 Stanford University	1,564	1,485	1,254	1,319	971	11	244	1,222
Total, 1st 40 insts.	151,248	143,242	124,266	106,304	37,076	16,662	42,150	55,360
41 SUNY at Stony Brook	1,521	958	1,160	1,241	156	420	3	942
42 University of Georgia	1,504	1,705	1,743	1,532	738	0	151	615
43 Univ. Of Tennessee System	1,491	1,326	1,124	1,175	887	343	225	36
44 Univ of Southern Cal	1,479	1,217	985	698	140	0	1,108	231
45 Purdue University	1,454	1,465	1,477	1,393	1,097	0	305	52
46 Clemson University	1,419	1,303	1,562	759	1,297	61	0	61
47 Univ of South Carolina	1,415	1,129	950	1,065	144	320	616	335
48 Univ of Missouri Columbia	1,402	1,073	859	780	977	9	191	225
49 University of Miami	1,394	1,208	367	189	64	0	309	1,021
50 American University	1,273	979	1,023	521	219	594	0	460
Total, 1st 50 insts.	165,600	155,605	135,516	115,657	42,795	18,409	45,058	59,338

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-65. Federally financed R&D expenditures in the social sciences at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Institution ranking	Social sciences total				1990 subfields			
	1990	1989	1988	1987	Economics	Political science	Sociology	Other
51 Desert Research Institute	1,265	1,210	930	533	0	0	0	1,265
52 University of Pittsburgh	1,264	1,021	470	239	241	190	0	833
53 Univ of Massachusetts	1,242	1,044	714	436	20	37	516	669
54 Univ of Cal Irvine	1,229	1,321	1,217	1,429	0	496	61	672
55 Northern Illinois Univ	1,161I	1,053	755	580	0I	221	68I	1,071I
56 Mississippi State Univ	1,151	770	753	666	451	0	248	452
57 SUNY at Buffalo	1,139	924	326	161	0	0	106	1,033
58 Vanderbilt University	1,087	181	650	770	14	877	64	132
59 Oklahoma State University	1,035	283	851	862	750	122	162	1
60 Princeton University	1,031	1,472	1,880	1,809	68	858	105	0
Total, 1st 60 insts.	177,204	164,884	144,062	123,142	44,339	21,011	46,388	65,466
61 University of Chicago	1,027	1,193	952	968	114	42	25	846
62 Univ of Rhode Island	1,012	179I	188	190	987	0	25	0
63 Cleveland State Univ	1,010	465	121	127	0	2	967	41
64 Indiana University	997	879	815	487	37	274	244	442
65 Portland State University	950	699	558	426	0	93	0	857
66 Mass Inst of Technology	927	1,310	1,949	2,510	445	124	0	358
67 University of Iowa	904	791	640	944	209	31	247	417
68 Univ of New Hampshire	867	1,742	601	455	0	0	0	867
69 University of Delaware	867	477	308	214	83	6	778	0
70 Univ of Wis-Milwaukee	865	692	326	348	0	5	0	860
Total, 1st 70 insts.	186,630	173,311	150,520	129,811	46,214	21,588	48,674	70,154
71 N C State Univ at Raleigh	833	655	774	846	698	0	135	0
72 Syracuse University	827	956	904	2,374	54	42	72	659
73 Univ of Ill Chicago	817	522	671	510	30	15	1	771
74 Fordham University	801	815	1,375	1,618	0	0	801	0
75 University of New Mexico	785	1,032	1,057	1,074	0	11	226	548
76 U Tex Hlth Sci Ctr Houstn	782	948	915	964	0	0	782	0
77 Univ of Nebraska-Lincoln	754	572	343	242	166	174	289	125
78 Univ of Alaska Fairbanks	748	765	672E	643I	8	22	65	653
79 University of Kentucky	744	567	577	350	130	20	512	82
80 University of Montana	744	51	54E	199	32	0	0	712
Total, 1st 80 insts.	194,465	180,194	157,862	138,631	47,332	21,872	51,557	73,704
81 Oregon State University	693	706	690	706	245	0	344	104
82 Southern Methodist Univ	666I	378	583	576	0I	0I	0I	666I
83 University of Florida	663	443	514	464	0	0	167	496
84 Chas R Drew U of Med & Sc	660I	617	0	269	0I	0I	660I	0I
85 Northwestern University	605	493	524	595	336	0	71	198
86 Case Western Reserve Univ	603	613	487	568	0	0	213	390
87 San Diego State Univ	599	812	849	530	10	0	208	381
88 Boston University	586	704	313	219	236	0	0	350
89 University of Oklahoma	576	488	472	465	99	14	0	463
90 Howard University	574I	533I	493I	453E	0I	358I	0I	216I
Total, 1st 90 insts.	200,690	185,981	162,787	143,476	48,258	22,244	53,220	76,968
91 University of Oregon	567	555	370	406	100	137	10	320
92 George Mason University	547	9	270	196	68	117	362	0
93 South Carolina St College	544I	340I	299	220I	458I	0I	86I	0I
94 Yale University	544	949	1,344	1,563	357	0	67	120
95 Univ of Hawaii-Manoa	524	506	583	586	96	36	1	391
96 Kans St U - Ag & App Sci	488	717	559	540	425	23	17	23
97 University of Idaho	488	322	776	286	242	0	238	8
98 Loyola Univ - Chicago	487	475	89	76	0	0	481	6
99 Univ of Cal Davis	474	361	526	260	13	281	33	147
100 Univ of Cal San Diego	469	460	396	304	223	218	9	19
Total, 1st 100 insts.	205,822	190,675	167,999	147,913	50,240	23,056	54,524	78,002
Total, all other sampled insts.	17,382	18,217	20,396	20,345	3,929	1,710	5,089	6,654
Estimated total non-sampled insts.	2,230	2,352	0	0	300	130	156	1,644

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-66. Current fund expenditures for research equipment at universities and colleges, by science and engineering field and source of funds: fiscal years 1983, 1989, and 1990

[Dollars in thousands]

Field	Total			Federal			Non-Federal		
	1983	1989	1990	1983	1989	1990	1983	1989	1990
Total	454,426	994,195	1,013,667	280,575	591,825	595,154	173,851	402,371	418,513
Engineering, total	79,901	205,199	219,519	51,923	117,366	124,922	27,978	87,832	94,597
Aeronautical and astronautical	3,481	11,766	10,515	2,651	8,758	7,963	830	3,008	2,553
Chemical	6,032	18,654	17,211	3,480	9,429	7,770	2,552	9,225	9,441
Civil	7,353	16,193	20,443	3,727	9,048	11,768	3,626	7,145	8,675
Electrical	22,602	49,400	56,010	16,042	29,240	33,622	6,560	20,159	22,388
Mechanical	11,147	29,067	32,651	7,635	16,533	18,085	3,512	12,534	14,566
Metallurgical and materials 1/	NA	NA	28,194	NA	NA	19,156	NA	NA	9,038
Other, n.e.c.	29,286	80,119	54,494	18,388	44,358	26,558	10,898	35,761	27,936
All sciences, total	528,867	1,092,922	1,133,885	309,196	597,715	614,903	219,671	495,207	518,982
Physical sciences	81,041	179,688	187,745	63,614	132,204	140,630	17,427	47,484	47,115
Astronomy	4,187	9,968	13,145	3,518	6,901	8,290	669	3,067	4,855
Chemistry	32,631	75,405	72,706	23,188	52,589	51,224	9,443	22,816	21,482
Physics	36,699	81,974	89,572	30,555	64,488	73,071	6,144	17,485	16,501
Other, n.e.c.	7,524	12,341	12,322	6,353	8,225	8,045	1,171	4,116	4,277
Environmental sciences	31,096	65,375	69,904	19,166	43,854	46,235	11,930	21,521	23,669
Atmospheric	5,219	12,117	10,830	3,717	7,869	8,256	1,502	4,248	2,574
Earth sciences	11,559	25,536	28,921	6,324	16,182	16,716	5,235	9,354	12,204
Oceanography	11,350	17,504	19,580	7,234	13,798	15,103	4,116	3,706	4,477
Other, n.e.c.	2,968	10,218	10,573	1,891	6,004	6,160	1,077	4,214	4,413
Mathematical sciences	3,745	10,528	10,114	2,484	6,916	6,602	1,261	3,611	3,512
Computer sciences	20,839	42,024	44,688	14,475	29,028	28,391	6,364	12,996	16,297
Life sciences	211,318	439,928	430,266	114,972	237,578	224,884	96,346	202,350	205,382
Agricultural sciences	40,659	60,642	53,429	10,920	18,063	14,490	29,739	42,579	38,939
Biological sciences	74,090	175,312	170,523	48,687	109,566	100,983	25,403	65,746	69,541
Medical sciences	89,492	183,803	187,108	51,249	98,377	99,752	38,243	85,426	87,356
Other, n.e.c.	7,077	20,171	19,205	4,116	11,572	9,659	2,961	8,599	9,546
Psychology	6,604	10,625	10,825	4,597	6,902	6,709	2,007	3,723	4,116
Social sciences	9,445	14,331	15,013	3,098	4,675	4,693	6,347	9,655	10,320
Economics	2,147	3,968	3,924	861	976	926	1,286	2,992	2,998
Political science	870	1,545	1,422	322	346	328	548	1,199	1,094
Sociology	1,413	3,074	2,768	844	1,112	1,180	569	1,962	1,588
Other, n.e.c.	5,015	5,743	6,900	1,071	2,241	2,259	3,944	3,502	4,641
Other sciences, n.e.c.	10,437	26,499	25,594	6,246	13,301	12,089	4,191	13,198	13,505

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-67. Current fund expenditures for research equipment at doctorate-granting institutions, by science and engineering field and source of funds: fiscal years 1983, 1989, and 1990

(Dollars in thousands)

Field	Total			Federal			Non-Federal		
	1983	1989	1990	1983	1989	1990	1983	1989	1990
Total	442,523	968,558	986,449	273,349	579,020	582,498	169,174	389,538	403,951
Engineering, total	78,275	198,846	212,457	51,099	114,397	123,353	27,176	84,449	89,104
Aeronautical and astronautical	3,421	11,404	10,500	2,596	8,396	7,955	825	3,008	2,545
Chemical	6,021	18,398	17,132	3,476	9,222	7,698	2,545	9,176	9,434
Civil	7,058	15,269	19,666	3,599	8,203	11,464	3,459	7,066	8,202
Electrical	22,170	47,586	55,146	15,794	28,978	33,197	6,376	18,308	21,949
Mechanical	10,918	28,387	31,144	7,491	16,111	17,542	3,427	12,276	13,602
Metallurgical and materials 1/	NA	NA	28,103	NA	NA	19,076	NA	NA	9,027
Other, n.e.c.	28,687	78,102	50,766	18,143	43,487	26,421	10,544	34,615	24,345
All sciences, total	515,887	1,070,319	1,108,079	301,033	586,869	602,003	214,854	483,450	506,076
Physical sciences	78,614	175,018	181,847	62,266	129,585	136,922	16,348	45,433	44,925
Astronomy	4,130	9,968	13,145	3,475	6,901	8,290	655	3,067	4,855
Chemistry	31,081	72,444	69,286	22,416	51,064	49,585	8,665	21,380	19,701
Physics	35,942	80,396	87,192	30,066	63,457	71,023	5,876	16,939	16,167
Other, n.e.c.	7,461	12,210	12,224	6,309	8,163	8,022	1,152	4,047	4,202
Environmental sciences	29,936	63,821	67,424	18,426	42,782	44,707	11,510	21,039	22,717
Atmospheric	5,135	12,032	10,778	3,639	7,841	8,241	1,496	4,191	2,537
Earth sciences	11,058	24,951	27,199	5,933	15,775	15,663	5,125	9,176	11,536
Oceanography	10,995	16,937	19,115	7,078	13,334	14,733	3,917	3,603	4,382
Other, n.e.c.	2,748	9,901	10,332	1,776	5,832	6,070	972	4,069	4,262
Mathematical sciences	3,238	9,660	9,819	2,350	6,640	6,524	888	3,020	3,295
Computer sciences	20,169	41,383	42,434	14,227	28,870	27,034	5,942	12,513	15,400
Life sciences	207,370	429,910	422,334	111,965	232,370	220,909	95,405	197,540	201,425
Agricultural sciences	39,162	56,896	50,887	9,640	16,080	12,828	29,522	40,816	38,059
Biological sciences	71,919	169,837	165,325	47,146	106,808	98,808	24,773	63,029	66,517
Medical sciences	89,350	183,172	186,948	51,157	98,000	99,629	38,193	85,172	87,319
Other, n.e.c.	6,939	20,005	19,174	4,022	11,482	9,644	2,917	8,523	9,530
Psychology	6,163	10,217	10,090	4,272	6,659	6,364	1,891	3,558	3,726
Social sciences	8,567	13,329	14,554	2,638	4,471	4,640	5,929	8,858	9,914
Economics	1,800	3,836	3,857	657	955	920	1,143	2,881	2,937
Political science	779	1,518	1,559	269	336	319	510	1,182	1,040
Sociology	1,206	2,808	2,934	696	1,086	1,171	510	1,725	1,463
Other, n.e.c.	4,782	5,167	6,204	1,016	2,094	2,230	3,766	3,073	4,474
Other sciences, n.e.c.	10,191	26,374	25,490	6,106	13,246	12,045	4,085	13,128	13,445

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

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Table B-68. Current fund expenditures for research equipment at universities and colleges, by science and engineering field, source of funds, and type of control: fiscal year 1990

[Dollars in thousands]

Field	Total			Federal			Non-Federal		
	Total	Public	Private	Total	Public	Private	Total	Public	Private
Total	1,013,667	661,017	352,650	595,154	340,960	254,194	418,513	320,057	98,455
Engineering, total	219,519	150,810	68,709	124,922	76,994	47,927	94,597	73,816	20,781
Aeronautical and astronautical	10,515	5,274	5,241	7,963	3,450	4,513	2,553	1,825	728
Chemical	17,211	12,326	4,885	7,770	4,889	2,881	9,441	7,437	2,004
Civil	20,443	16,005	4,438	11,768	8,925	2,843	8,675	7,080	1,595
Electrical	56,010	35,325	20,685	33,622	18,779	14,843	22,388	16,546	5,842
Mechanical	32,651	20,889	11,762	18,085	9,905	8,180	14,566	10,984	3,582
Metallurgical and materials 1/	28,194	22,698	5,496	19,156	15,741	3,415	9,038	6,957	2,081
Other, n.e.c.	54,494	38,293	16,201	26,558	15,306	11,252	27,936	22,987	4,949
All sciences, total	1,133,885	785,335	348,550	614,903	387,416	227,487	518,982	397,919	121,063
Physical sciences	187,745	114,188	73,557	140,630	77,971	62,659	47,115	36,217	10,898
Astronomy	13,145	6,891	6,254	8,290	3,586	4,704	4,855	3,305	1,550
Chemistry	72,706	48,947	23,759	51,224	33,129	18,095	21,482	15,818	5,664
Physics	89,572	51,122	38,450	73,071	37,766	35,305	16,501	13,356	3,145
Other, n.e.c.	12,322	7,228	5,094	8,045	3,490	4,555	4,277	3,738	539
Environmental sciences	69,904	50,470	19,433	46,235	29,815	16,420	23,669	20,655	3,014
Atmospheric	10,830	9,138	1,692	8,256	6,634	1,622	2,574	2,504	70
Earth sciences	28,921	18,766	10,154	16,716	8,318	8,399	12,204	10,449	1,756
Oceanography	19,580	14,796	4,784	15,103	10,885	4,218	4,477	3,911	566
Other, n.e.c.	10,573	7,770	2,803	6,160	3,979	2,181	4,413	3,791	622
Mathematical sciences	10,114	5,826	4,287	6,602	3,151	3,451	3,512	2,675	837
Computer sciences	44,688	20,629	24,059	28,391	9,063	19,328	16,297	11,566	4,731
Life sciences	430,266	280,715	149,551	224,884	127,440	97,444	205,382	153,275	52,107
Agricultural sciences	53,429	51,141	2,288	14,490	13,893	597	38,939	37,248	1,691
Biological sciences	170,523	105,658	64,865	100,983	53,905	47,078	69,541	51,754	17,787
Medical sciences	187,108	112,277	74,831	99,752	56,065	43,687	87,556	56,212	31,344
Other, n.e.c.	19,205	11,638	7,567	9,659	3,577	6,082	9,346	8,061	1,485
Psychology	10,825	6,822	4,003	6,709	3,763	2,946	4,116	3,058	1,057
Social sciences	15,013	11,814	3,199	4,693	3,351	1,342	10,320	8,463	1,857
Economics	3,924	3,343	581	926	693	233	2,998	2,650	348
Political science	1,422	902	520	328	154	174	1,094	748	346
Sociology	2,768	2,209	559	1,180	887	293	1,588	1,322	266
Other, n.e.c.	6,900	5,360	1,540	2,259	1,617	642	4,641	3,743	898
Other sciences, n.e.c.	25,594	19,743	5,851	12,089	9,411	2,678	13,505	10,332	3,173

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTE: n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-69. Total and federally financed current-fund expenditures for research equipment at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Institution ranking	Total				Federally financed			
	1990	1989	1988	1987	1990	1989	1988	1987
Total, all institutions	1,013,667	994,195	918,919	845,683	595,154	591,825	575,717	525,762
1 Univ of Wis-Madison	29,015	28,875	25,303	26,352	15,693	15,517	13,376	14,439
2 Johns Hopkins Univ	23,384	26,830	27,802	23,910	23,199	24,712	25,983	24,247
3 Mass Inst of Technology	21,498	13,957	19,344	19,967	15,468	8,693	14,386	15,501
4 Cornell University	21,461	22,844	24,039	27,143	13,108	14,583	16,032	16,906
5 Stanford University	20,231I	19,139	23,919	20,138	16,641I	16,755	21,791	18,705
6 Univ of Ill Urbana	19,116	21,841	21,709	23,147	10,637	13,336	13,115	14,060
7 Louisiana State Univ	18,836	14,114	9,411	5,954	10,539	6,015	3,687	2,641
8 University of Washington	16,714	19,316	16,833	18,632	13,784	13,832	11,853	12,685
9 University of Minnesota	16,021	15,851	10,868	10,801	8,662	8,661	6,365	6,160E
10 University of Arizona	15,894	12,300	11,229	10,707	9,438	7,092	7,118	6,167
Total, 1st 10 insts.	204,170	195,067	188,457	188,751	137,169	129,156	132,706	131,811
11 Texas A & M University	15,743	14,023	12,120	14,912	6,601	4,339	5,217	2,792
12 California Inst of Tech	14,583	13,371	11,147	13,724	13,176	11,567	9,757	11,270E
13 Pennsylvania State Univ	13,967	18,400	11,301	9,328	7,411	11,384	5,795	4,559
14 University of Michigan	11,881	15,696	15,308	13,145E	7,639	10,709	9,464	7,689E
15 Columbia Univ Main Div	11,709	10,443	10,852	10,696	10,044	8,192	8,344	9,316
16 Yale University	11,399	11,010	11,748	9,609	8,690	8,329	9,538	7,535
17 Univ of Texas at Austin	11,001	11,454	10,158	17,720	6,952	7,875	7,422	14,674
18 Univ of Cal San Diego	10,989	8,630	7,672	8,078	7,215	6,957	5,820	5,654
19 Univ of Pennsylvania	10,867	9,436	7,571	8,231	7,680	6,671	5,360	6,368
20 University of Rochester	10,730	11,453	9,672	7,815	8,914	9,142	8,520	5,372
Total, 1st 20 insts.	327,039	318,983	295,946	301,037	221,491	214,311	207,943	207,040
21 N C State Univ at Raleigh	10,588	10,364	9,858	4,351E	4,568	4,747	5,414	2,510
22 Univ. Of Tennessee System	10,469	16,347	13,873	16,226	1,980	2,693	2,441	5,143
23 Georgia Institute of Tech	10,100	11,977	8,152	6,317	5,696	6,723	4,864	3,314
24 Univ of MD College Park	9,798	9,648	8,959	9,435	4,255	3,576	4,278	5,261
25 University of Miami	9,738	4,842	5,517	4,787	6,265	3,263	3,790	2,985
26 Univ of Cal Los Angeles	9,671	7,995	6,589	8,373	5,820	5,240	4,147	5,693
27 University of Georgia	9,656	8,619	6,593E	6,593	5,699	2,931	2,776E	2,776
28 University of Florida	9,622	9,753	9,044	9,094	6,059	6,022	5,862	5,216
29 Univ of Southern Cal	9,525	9,879	10,556	12,177	7,795	8,346	8,925	11,165
30 University of Chicago	9,067	8,929	7,465	6,649	7,937	7,932	6,315	5,889E
Total, 1st 30 insts.	425,270	417,536	380,552	385,239	273,525	264,784	253,753	253,992
31 Washington University	8,921	7,523	6,883	5,302	6,108	5,614	5,190	4,136
32 Northwestern University	8,919	8,445	9,521	9,118	4,114	4,001	5,597	2,965
33 Duke University	8,598	6,451	7,148	9,144	5,624	6,062	5,163	5,942
34 Baylor Col of Medicine	8,451	11,511	7,053	5,055	5,964	2,924	4,493	2,668
35 Carnegie-Mellon Univ	8,358	8,027	10,006	11,979	5,913	5,953	7,930	9,608
36 Univ. of Colorado	8,336	8,079	7,802	6,178	6,380	6,614	6,214	5,086
37 University of Iowa	8,033	8,772	8,001	6,613	3,974	4,904	3,319	3,605
38 Purdue University	7,690	9,113	9,505	7,765	4,870	6,211	7,059	5,748
39 University of Utah	7,398	5,489	5,838	5,073	3,245	3,746	4,518	3,877
40 SUNY at Stony Brook	7,366	5,426	5,733	3,764	6,335	4,427	4,952	3,151
Total, 1st 40 insts.	507,340	498,371	456,042	448,230	324,052	318,240	306,197	298,778
41 Univ of South Florida	7,360	5,205	1,106	1,001	3,735	2,847	757	602
42 Harvard University	7,291	11,385	10,072	8,546	5,575	9,354	7,855	7,059
43 Arizona State University	7,207	5,240	4,487	5,445	3,920	3,057	1,876	5,161
44 Univ of NC at Chapel Hill	7,192	7,901	7,062	5,76E	4,254	4,774	4,402	3,417
45 Univ of Cal San Francisco	7,032	7,677	6,376	6,675	4,724	5,107	3,776	4,192
46 Ohio State University	6,849	6,693	9,199	7,035	3,020	3,064	3,695	2,552
47 Univ of Cal Berkeley	6,562	7,077	7,167	5,964	4,728	5,721	6,094	4,695
48 Univ of Massachusetts	6,427	6,976	8,008	5,841	2,948	5,931	4,821	3,651
49 Rutgers the St Univ of NJ	6,423	7,850	9,583	8,575	2,665	3,642	1,437	1,560
50 University of Pittsburgh	6,309	5,202	5,377	5,081	4,822	3,947	3,918	3,987
Total, 1st 50 insts.	575,992	569,577	524,479	508,155	361,443	361,684	344,828	332,654

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-69. Total and federally financed current-fund expenditures for research equipment at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1990	1989	1988	1987	1990	1989	1988	1987
51 Oregon State University	6,284	4,159	3,900	2,491	5,287	2,808	2,733	1,962
52 Princeton University	6,184	6,040	7,036	5,585	4,875	5,110	5,435	6,349
53 Iowa St U of Sci & Tech	5,933	4,092	4,468	3,965	2,735	3,091	3,790	5,450
54 Univ of Cal Davis	5,904	5,465	4,662	3,826	4,084	3,268	2,860	2,031
55 Indiana University	5,789	6,115	6,364	2,956	3,934	4,908	4,279	4,674
56 Univ of Ill Chicago	5,773	6,287	6,126	5,171	3,031	2,973	3,238	2,473
57 UT SW Medical Ctr-Dallas	5,772	5,153	3,961	4,614	2,283	1,893	1,873	2,709
58 Rensselaer Polytech Inst	5,728	3,717	4,068	2,905	4,424	2,061	1,829	1,640
59 West Virginia University	5,727	3,313	2,344	1,472	3,565	2,095	1,634	635
60 VA Polytech Inst & St U	5,624	5,727	3,865	3,977	1,986	2,088	1,549	1,692
Total, 1st 60 insts.	634,710	619,645	571,273	549,917	394,639	389,959	373,648	359,264
61 Univ of Nebraska-Lincoln	5,586	5,114	3,316	2,734	1,209	1,082	1,409	1,400
62 Univ of South Carolina	5,563	3,350	4,674	5,151	2,814	1,998	1,541	1,114
63 Michigan State University	5,543	6,205	6,685	5,930	3,967	4,340	4,936	4,474
64 Emory University	5,392	5,522	5,609	3,923	4,805	4,551	4,271	3,744
65 University of Virginia	5,218	5,287	3,848	2,798	4,630	4,992	4,649	2,533
66 Univ Alabama Birmingham	5,184	5,474	3,369	3,164	3,178	3,475	2,968	3,217
67 SUNY at Buffalo	5,081	6,225	3,948	3,365	3,299	3,524	3,038	2,661
68 Florida State University	5,053	4,782	3,065	3,148	2,658	2,165	1,890	1,557
69 Vanderbilt University	5,017	4,855	4,552	3,302	4,543	4,526	2,957	2,160
70 Clemson University	4,999	4,962	3,172	3,267	680	741	811	1,046
Total, 1st 70 insts.	687,326	671,356	617,281	587,689	423,112	418,210	402,108	382,192
71 Colorado State University	4,967	5,724	5,804	2,971	4,257	4,896	5,177	2,615
72 Brown University	4,883	2,905	4,234	3,864	3,905	2,439	3,351	2,420
73 Wayne State University	4,828	3,161	5,831	4,018	892	2,004	1,731	1,061
74 Auburn University	4,782	4,333	5,076	4,640	1,141	2,214	2,265	1,724
75 Woods Hole Ocngrphic Inst	4,734	8,067	5,800	3,121	4,219	7,714	4,200	2,821
76 University of Cincinnati	4,706	4,433	3,414	3,045	2,713	2,668	1,913	2,635
77 Univ of MD Balt Prof Sch	4,654	6,022	4,994	4,2781	1,274	1,722	1,754	3,3261
78 U of Houston	4,640	4,523	3,154	1,564	2,088	2,444	1,864	1,152
79 Syracuse University	4,626	3,149	5,994	3,536	2,469	1,648	5,619	2,095
80 Univ of Missouri Columbia	4,489	4,786	5,763	3,368	683	1,341	831	762
Total, 1st 80 insts.	734,635	722,459	668,245	622,094	446,753	446,300	430,813	402,800
81 Oklahoma State University	4,432	3,877	4,595	2,365	2,262	1,519	2,197	998
82 Univ of Central Florida	4,415	2,793	545	4441	1,284	1,105	192	1251
83 SUNY Hlth Sci Ctr - Syrcs	4,374	3,085	1,933	1,271	613	679	643	542
84 Case Western Reserve Univ	4,3701	4,1341	4,137	4,546	3,3001	3,2931	3,297	1,865
85 Univ of Cal Santa Barbara	4,314	2,829	2,752	2,775	3,757	2,317	2,389	2,468
86 University of Connecticut	4,293	5,830	4,289	4,167	1,647	3,006	2,708	2,441
87 Yeshiva University	4,161	4,569	3,905	1,683	3,265	1,817	2,475	1,575
88 University of Oklahoma	4,150	4,207	4,664	4,215	1,110	1,361	1,478	1,951
89 Univ of Cal Irvine	4,116	3,396	2,684	2,361	3,131	2,539	2,285	1,877
90 CUNY Mt Sinai Sch of Med	4,019	2,722	1,073	1,143	3,439	1,938	756	803
Total, 1st 90 insts.	777,279	759,901	698,822	647,064	470,561	465,874	449,233	417,445
91 Rockefeller University	3,949	3,820	3,332	3,469	1,817	1,758	1,533	1,596
92 Tulane University	3,796	3,480	5,491	6,649	1,881	850	2,215	3,645E
93 New York University	3,726	3,485	3,689	5,471	2,815	2,842	3,051	3,489
94 Boston University	3,593	2,588	5,577	2,582	5,777	5,200	2,106	2,275
95 University of Delaware	3,424	3,612	5,958	3,738	1,276	1,855	1,142	1,700
96 University of Kansas	3,420	2,916	2,984	3,504	1,264	1,240	1,431	1,936
97 Texas Tech University	3,408	4,050	2,415	2,675	576	1,164	865	1,101
98 US Naval Postgrad School	3,369	3,776	4,638	2,047	3,352	3,750	4,638	2,026
99 San Diego State Univ	3,170	2,279	2,609	2,055	1,060	638	737	690
100 University of New Mexico	3,126	4,728	3,840	4,522	1,476	2,837	2,040	2,633
Total, 1st 100 insts.	812,260	794,635	733,355	683,776	488,855	485,008	468,991	438,536
Total, all other sampled insts.	187,594	186,449	185,564	161,907	101,896	101,649	106,726	87,226
Estimated total non-sampled insts.	13,813	13,111	0	0	4,403	5,168	0	0

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-70. R&D expenditures at university-administered federally funded research and development centers, by character of work: fiscal years 1953-90

[Dollars in millions]

Fiscal year	Total	Character of work			
		Basic research		Applied research and development	
		Amount	Percent of total	Amount	Percent of total
1953	121	33	27.3%	88	72.7%
1954	141	39	27.7	102	72.3
1955	180	49	27.2	131	72.8
1956	194	51	26.3	143	73.7
1957	240	65	27.1	175	72.9
1958	293	78	26.6	215	73.4
1959	338	92	27.2	246	72.8
1960	360	97	26.9	263	73.1
1961	410	115	28.0	295	72.0
1962	470	136	28.9	334	71.1
1963	530	159	30.0	371	70.0
1964	629	191	30.4	438	69.6
1965	629	208	33.1	421	66.9
1966	630	227	36.0	403	64.0
1967	673	250	37.1	423	62.9
1968	719	276	38.4	443	61.6
1969	725	275	37.9	450	62.1
1970	737	269	36.5	468	63.5
1971	716	260	36.3	456	63.7
1972	753	244	32.4	509	67.6
1973	817	296	36.2	521	63.8
1974	865	390	45.1	475	54.9
1975	987	439	44.5	548	55.5
1976	1,147	512	44.6	635	55.4
1977	1,384	600	43.4	784	56.6
1978 1/	1,717	NA	NA	NA	NA
1979	1,935	1,015	52.5	919	47.5
1980	2,246	1,124	50.0	1,122	50.0
1981	2,486	1,261	50.7	1,225	49.3
1982	2,479	1,317	53.1	1,161	46.8
1983	2,737	1,472	53.8	1,264	46.2
1984	3,150	1,675	53.2	1,475	46.8
1985	3,523	1,749	49.6	1,774	50.4
1986	3,895	1,859	47.7	2,036	52.3
1987	4,206	2,012	47.8	2,194	52.2
1988	4,531	2,222	49.0	2,308	50.9
1989	4,729	2,329	49.2	2,399	50.7
1990	4,831	2,402	49.7	2,429	50.3

1/ Data were not collected in fiscal year 1978.

NOTE: NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-71. R&D expenditures at university-administered federally funded research and development centers, by science and engineering field: fiscal years 1983-90

(Dollars in thousands)

Field	1983	1984	1985	1986	1987	1988	1989	1990
Total	2,736,652	3,150,380	3,523,092	3,894,806	4,206,084	4,530,562	4,728,642	4,831,003
Engineering, total	944,952	1,097,444	1,296,043	1,445,252	1,547,061	1,614,250	1,642,799	1,708,134
Aeronautical and astronautical	69,057	86,022	107,065	126,566	132,238	146,894	145,035	143,643
Chemical	45,832	39,230	40,082	40,048	41,884	43,964	40,162	40,754
Civil	13,378	13,596	15,597	16,014	17,568	17,500	16,439	15,083
Electrical	316,652	390,967	454,233	514,263	550,430	555,635	568,626	604,894
Mechanical	339,573	396,962	489,469	540,103	570,698	602,857	628,057	627,262
Metallurgical and materials 1/	NA	NA	NA	NA	NA	NA	NA	3,481
Other, n.e.c.	160,460	170,667	189,597	208,258	234,243	247,400	244,480	273,017
All sciences, total	1,791,700	2,052,936	2,227,049	2,449,554	2,659,023	2,916,312	3,085,843	3,122,869
Physical sciences	1,192,067	1,369,108	1,448,808	1,540,627	1,660,404	1,717,181	1,827,344	1,823,680
Astronomy	69,108	77,683	73,330	79,047	82,360	117,658	112,493	112,239
Chemistry	200,505	221,002	226,440	246,911	261,267	274,647	274,359	261,048
Physics	885,500	1,023,210	1,097,949	1,159,738	1,257,808	1,263,616	1,377,045	1,381,640
Other, n.e.c.	36,954	47,213	51,089	54,931	58,969	61,260	63,447	68,753
Environmental sciences	159,032	175,152	200,074	232,606	257,800	289,352	298,529	292,045
Atmospheric	61,139	66,604	83,498	99,017	103,504	91,069	98,594	103,239
Earth sciences	37,795	42,913	46,552	50,361	76,276	80,190	65,212	64,894
Oceanography	13,068	15,196	16,056	19,489	2,032	1,764	1,916	1,664
Other, n.e.c.	47,030	50,439	53,968	63,739	75,988	116,329	132,807	122,248
Mathematical sciences	65,340	81,376	92,858	109,102	121,793	126,084	162,247	176,839
Computer sciences	224,274	266,268	338,116	427,297	472,766	621,744	634,509	644,489
Life sciences	104,484	106,313	110,905	107,506	115,416	123,508	130,556	142,394
Agricultural sciences	1,008	639	633	663	684	1,397	1,175	1,017
Biological sciences	76,437	80,730	82,057	85,195	87,202	91,712	101,287	112,559
Medical sciences	9,555	11,093	10,729	8,572	10,570	12,996	10,114	10,345
Other, n.e.c.	17,484	13,851	17,486	13,076	16,960	17,403	17,980	18,473
Psychology	194	240	264	294	899	973	947	1,010
Social sciences	21,067	18,056	17,591	19,343	21,421	27,868	23,291	29,744
Economics	4,254	3,590	4,401	4,043	2,554	1,477	491	632
Political science	3,955	3,319	4,038	4,994	4,563	5,843	3,858	6,459
Sociology	0	0	0	0	0	0	0	0
Other, n.e.c.	12,858	11,147	9,152	10,306	14,304	20,548	18,942	22,653
Other sciences, n.e.c.	25,242	36,423	18,433	12,779	8,524	9,602	8,420	12,668

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-72. Federally financed R&D expenditures at university-administered federally funded research and development centers, by science and engineering field: fiscal years 1983-90

[Dollars in thousands]

Field	1983	1984	1985	1986	1987	1988	1989	1990
Total	2,697,078	3,106,166	3,476,699	3,862,913	4,174,718	4,498,909	4,691,232	4,790,549
Engineering, total	932,483	1,084,877	1,284,767	1,435,137	1,539,481	1,607,422	1,633,585	1,699,499
Aeronautical and astronautical	68,958	85,892	106,959	126,481	132,169	146,813	144,910	143,495
Chemical	43,197	38,649	39,463	39,364	41,378	43,427	39,534	40,218
Civil	13,112	13,370	15,369	15,815	17,415	17,335	16,238	14,892
Electrical	313,091	386,868	450,988	511,852	548,560	554,139	566,345	602,489
Mechanical	333,976	391,728	485,027	536,435	567,922	600,584	624,909	624,402
Metallurgical and materials 1/	NA	NA	NA	NA	NA	NA	NA	3,481
Other, n.e.c.	158,149	168,370	186,961	205,190	232,037	245,124	241,649	270,522
All sciences, total	1,764,595	2,021,289	2,191,932	2,427,776	2,635,237	2,891,487	3,057,647	3,091,050
Physical sciences	1,177,622	1,354,583	1,433,957	1,529,586	1,649,404	1,707,217	1,812,146	1,804,746
Astronomy	68,875	75,756	71,401	77,127	80,418	115,601	110,724	110,708
Chemistry	196,988	218,232	223,816	244,779	259,457	272,970	271,891	258,738
Physics	875,316	1,014,218	1,088,499	1,153,577	1,251,388	1,258,268	1,367,561	1,369,345
Other, n.e.c.	36,443	46,377	50,241	54,103	58,141	60,378	61,970	65,955
Environmental sciences	151,638	167,137	188,653	229,989	254,889	286,106	294,192	288,489
Atmospheric	55,459	60,218	73,684	98,069	102,269	89,620	96,625	101,226
Earth sciences	37,039	42,126	45,883	49,815	75,782	79,720	64,938	64,418
Oceanography	13,068	15,196	16,056	19,489	2,032	1,764	1,916	1,664
Other, n.e.c.	46,072	49,597	53,030	62,616	74,806	115,002	130,713	121,181
Mathematical sciences	64,174	80,092	91,770	108,196	121,075	125,434	160,792	174,988
Computer sciences	223,227	265,041	337,117	426,508	472,142	621,172	634,059	644,134
Life sciences	102,468	104,582	108,862	105,540	111,233	117,451	126,607	136,719
Agricultural sciences	1,008	639	633	663	684	1,397	1,175	1,017
Biological sciences	74,924	79,327	80,430	83,955	85,767	90,372	97,639	107,206
Medical sciences	9,471	11,023	10,583	8,006	7,973	8,451	10,061	10,304
Other, n.e.c.	17,065	13,593	17,216	12,916	16,809	17,231	17,732	18,192
Psychology	194	240	264	294	899	973	947	1,010
Social sciences	20,196	17,018	16,751	18,661	20,890	27,551	22,942	29,231
Economics	3,786	2,836	3,773	3,563	2,195	1,441	491	632
Political science	3,880	3,268	3,979	4,930	4,523	5,781	3,799	6,346
Sociology	0	0	0	0	0	0	0	0
Other, n.e.c.	12,530	10,914	8,999	10,168	14,172	20,329	18,652	22,253
Other sciences, n.e.c.	25,076	32,596	14,558	9,002	4,705	5,583	5,962	11,733

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-73. R&D expenditures at university-administered federally funded research and development centers, by science/engineering field: fiscal year 1990

[Dollars in thousands]

Institution ranking	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psy-chology	Social sciences	Other sciences
Total, all institutions	4,831,003	1,708,134	1,823,680	292,045	821,328	142,394	1,010	29,744	12,668
1 Jet Propulsion Laboratory	1,065,848	401,134	76,135	89,308	499,271	0	0	0	0
2 Lawrence Livermore Lab	1,019,920	487,515	315,533	33,292	152,678	30,902	0	0	0
3 Los Alamos National Lab	926,006	316,353	443,131	6,359	91,806	32,986	0	29,012	6,359
4 Lincoln Laboratory	419,093	295,419	79,879	0	43,418	0	377	0	0
5 Argonne Natl Laboratory	347,660	163,129	90,082	75,540	4,981	13,928	0	0	0
6 Brookhaven Nat'l Lab 1/	263,931	38,793	193,744	8,737	589	21,339	0	548	181
7 Lawrence Berkeley Lab	196,059	1,143	139,489	10,978	1,898	36,423	0	0	6,128
8 Fermi Nat Accelerat Lab 2/	184,608	0	184,608	0	0	0	0	0	0
9 Stfrd Linear Accelrtr Ctr	115,160	0	115,160	0	0	0	0	0	0
10 Plasma Physics Laboratory	95,267	0	95,267	0	0	0	0	0	0
Total, 1st 10 insts.	4,633,552	1,703,486	1,733,028	224,214	794,641	135,578	377	29,560	12,668
11 Natl Ctr Atmospheric Rs 3/	66,234	0	0	66,234	0	0	0	0	0
12 Nat Opt Astro Obs 4/	26,035	0	26,035	0	0	0	0	0	0
13 Software Engineering Inst	24,294	0	0	0	24,294	0	0	0	0
14 Ames Laboratory	23,275	4,648	17,704	0	923	0	0	0	0
15 Continuous Elec Beam Aclr	21,352	0	19,882	0	1,470	0	0	0	0
16 Nat'l Radio Astron Obs 1/	19,836	0	19,836	0	0	0	0	0	0
17 Oak Ridge Associated U 5/	8,503	0	870	0	0	6,816	633	184	0
18 Nat'l Astron & Ionos Ctr	7,922	0	6,325	1,597	0	0	0	0	0
Total, 1st 18 insts.	4,831,003	1,708,134	1,823,680	292,045	821,328	142,394	1,010	29,744	12,668

1/ Associated Universities, Inc.

2/ Universities Research Association.

3/ University Corporation for Atmospheric Research.

4/ Association of Universities for Research in Astronomy, Inc.

5/ Oak Ridge Associated Universities.

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-74. Total and federally financed R&D expenditures at university-administered federally funded research and development centers: fiscal years 1987-90

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1990	1989	1988	1987	1990	1989	1988	1987
Total, all institutions	4,831,003	4,728,642	4,530,562	4,206,084	4,790,549	4,691,232	4,498,909	4,174,718
1 Jet Propulsion Laboratory	1,065,848	1,078,776	1,059,250	915,527	1,065,848	1,078,776	1,059,250	915,527
2 Lawrence Livermore Lab	1,019,920	1,004,600	939,100	914,800	1,016,940	1,001,518	936,996	910,603
3 Los Alamos National Lab	926,006	902,361	882,431	835,306	909,628	888,534	872,906	827,280
4 Lincoln Laboratory	419,093	364,086	386,237	353,716	419,093	364,086	386,237	353,716
5 Argonne Natl Laboratory	347,660	343,280	303,273	276,605	341,757	335,512	297,786	271,112
6 Brookhaven Nat'l Lab 1/	263,931	255,206	234,206	220,529	263,931	255,206	234,206	220,529
7 Lawrence Berkeley Lab	196,059	193,183	183,223	174,450	185,009	184,338	176,031	167,602E
8 Fermi Nat Accelerat Lab 2/	184,608	185,069	173,233	167,088	184,608	185,069	168,703	164,503
9 Stfrd Linear Accelrtr Ctr	115,160	108,710	98,034	89,022	115,160	108,710	98,034	89,022
10 Plasma Physics Laboratory	95,267	112,557	103,483	107,184	94,909	112,158	103,080	106,107
Total, 1st 10 insts.	4,633,552	4,547,828	4,362,470	4,054,227	4,596,883	4,513,907	4,333,229	4,026,001
11 Natl Ctr Atmospheric Rs 3/	66,234	63,317	58,216	52,307	64,296	61,481	56,850	51,158
12 Nat Opt Astro Obs 4/	26,035	27,599	24,925	25,632	26,035	27,599	24,925	25,632
13 Software Engineering Inst	24,294	20,900	19,310	13,755	24,294	20,900	19,310	13,755
14 Ames Laboratory	23,275	21,769	21,201	19,213	23,275	21,769	21,201	19,213
15 Continuous Elec Beam Acir	21,352	13,228	12,464	NA	20,331	12,202	11,595	NA
16 Nat'l Radio Astron Obs 1/	19,836	18,492	16,184	16,974	19,836	18,492	16,184	16,974
17 Oak Ridge Associated U 5/	8,503	7,781	8,406	8,680	7,754	7,176	8,229	8,092
18 Nat'l Astron & Ionos Ctr	7,922	7,728	7,386	7,531	7,845	7,706	7,386	7,531
Total, 1st 18 insts.	4,831,003	4,728,642	4,530,562	4,198,319	4,790,549	4,691,232	4,498,909	4,168,356
Total, all other sampled insts.	0	0	0	7,765	0	0	0	6,362

1/ Associated Universities, Inc.

2/ Universities Research Association.

3/ University Corporation for Atmospheric Research.

4/ Association of Universities for Research in Astronomy, Inc.

5/ Oak Ridge Associated Universities.

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Section C.
University-Administered Federally Funded Research and Development Centers: FY 1990

Department of Defense

Lincoln Laboratory (Massachusetts Institute of Technology)
Software Engineering Institute (Carnegie Mellon University)

Department of Energy

Ames Laboratory (Iowa State University of Science and Technology)
Argonne National Laboratory (University of Chicago and Argonne Universities Association)
Brookhaven National Laboratory (Associated Universities, Inc.)
Continuous Electron Beam Accelerator Facility (Southeastern Universities Research Association)
E. O. Lawrence Berkeley Laboratory (University of California)
E. O. Lawrence Livermore Laboratory (University of California)
Fermi National Accelerator Laboratory (Universities Research Association)
Los Alamos Scientific Laboratory (University of California)
Oak Ridge Institute of Nuclear Studies (Oak Ridge Associated Universities)
Plasma Physics Laboratory (Princeton University)
Stanford Linear Accelerator Center (Stanford University)

National Aeronautics and Space Administration

Jet Propulsion Laboratory (California Institute of Technology)

National Science Foundation

National Astronomy and Ionosphere Center (Cornell University)
National Center for Atmospheric Research (University Corporation for Atmospheric Research)
National Optical Astronomy Observatory (Association of Universities for Research in Astronomy, Inc.)
National Radio Astronomy Observatory (Associated Universities, Inc.)

Section D. Survey Instruments

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NATIONAL SCIENCE FOUNDATION
WASHINGTON, D.C. 20550

Dear Colleague:

The National Science Foundation (NSF) requests your participation in the annual Survey of Scientific and Engineering (S/E) Expenditures at Universities and Colleges, Fiscal Year 1990. This national effort, one of a series that covers S/E resources at academic institutions, collects data on current fund expenditures for separately budgeted research and development by S/E field and source of funds, and current fund expenditures for related research equipment.

The survey data are solicited under the authority of the National Science Foundation Act of 1950, as amended, and are for statistical use only. These data are used by Congress, other Federal and State governmental planners, and the academic sector to assess the adequacy of the nation's research base. By contributing timely and accurate information to this survey, you can ensure that your institution is represented in data used by these decision-makers. You may also find the data useful to your own institution for internal and/or peer analyses.

The survey results are representative of the national population of institutions that grant graduate S/E degrees and/or annually expend at least $50,000 in separately budgeted research and development funds. While participation is voluntary and failure to respond will not have any adverse effect upon your institution, the reliability of the data and therefore the soundness of institutional, State, and national decisions based upon them are in large measure contingent upon receipt of complete and accurate data from all surveyed institutions.

Survey results are distributed as rapidly as possible to maximize the utility of these data. Selected tables are initially made available in *Preview* form on the Science Resources Studies (SRS) Electronic Bulletin Board system, followed by publication in an *Early Release* pamphlet. *Highlights* providing a brief analysis of the survey results in text, tables, and graphs are published next, followed by a detailed report on the survey containing a large number of statistical tables. Survey results are also available on magnetic tape or diskettes (ASCII or Lotus 1-2-3 format) and are entered on the SRS Electronic Bulletin Board for direct access via personal computer.

The survey questionnaire is due on January 7, 1991. This packet contains the following items, several of which are described in greater detail in the subsequent text:

1. *Postcard to notify NSF of package receipt and to request ASQ*
2. *"FYI" flyer describing the NSF academic survey system*
3. *1990 R&D Expenditures Survey Form 411, with instructions and crosswalk*
4. *Facsimile showing data reported on the FY 1987-89 surveys*
5. *Envelope for returning the completed survey form*

POSTCARD

As soon as you receive this survey package, please let us know by filling out and mailing the postcard enclosed, stating the name and telephone number of the person responsible for completing the survey form.

THE 1990 SURVEY FORM 411 WITH INSTRUCTIONS AND NSF/NCES CROSSWALK

Although the 1990 survey form differs from the 1989 form, it incorporates changes requested by participating institutions. There are two significant changes. Item 4 on Capital Expenditures data has been discontinued from the survey. We have added a new sub-field under "Engineering" in Items 2 and 3: *Metallurgical and Materials Engineering*. In addition, we have included the NSF-NCES Crosswalk on the last two pages of the survey instrument. The Crosswalk relates NSF's S/E fields to the codes defined by the Department of Education's National Center for Education Statistics (NCES) in its publication *A Classification of Instructional Programs*. It is provided to aid respondents whose institutional recordkeeping systems are organized according to NCES classifications.

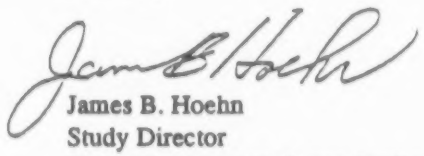
Response burden information that is requested involves estimating the average number of hours required to complete the survey. A survey-form facsimile that shows prior years' data received from your institution or imputed by NSF is enclosed for your information.

AUTOMATED SURVEY QUESTIONNAIRE

An automated survey questionnaire (ASQ) has been developed to provide respondents with the opportunity to edit their data submissions (for both arithmetical and trend errors) prior to sending them to NSF. Requirements for using ASQ include an IBM PC or compatible computer system and DOS 3.0 or a more recent upgrade. ***If you would like to receive ASQ (provided on diskette), please use the return postcard to request it.***

If questions arise when completing the survey form or if you wish further information regarding our publications/ diskettes, please call Ms. Marge Machen of NSF at (202) 634-4673. Thank you for your efforts in providing timely and meaningful statistics to NSF.

Sincerely,



James B. Hoehn
Study Director
Universities and Colleges Studies Group
Division of Science Resources Studies

NSF Form 411 (10-90)

FORM APPROVED
OMB No. 3145-0100
Expiration Date: 12/31/92

NATIONAL SCIENCE FOUNDATION
Washington, D.C. 20550

SURVEY OF SCIENTIFIC AND ENGINEERING EXPENDITURES AT UNIVERSITIES AND COLLEGES, FY 1990

Organizations are requested to complete and return this form to NSF:

NATIONAL SCIENCE FOUNDATION
1800 G Street N.W., Room L-611
Washington, DC 20550
[fax (202) 634-4683]

This form should be returned by January 7, 1991. Your cooperation in returning the survey questionnaire promptly is very important.

This information is solicited under the authority of the National Science Foundation Act of 1950, as amended. All information you provide will be used for statistical purposes only. Your response is entirely voluntary and your failure to provide some or all of the information will in no way adversely affect your institution.

All financial data requested on this form should be reported in thousands of dollars; for example, an expenditure of $25,342 should be rounded to the nearest thousand dollars and reported as $25.

Where exact data are not available, estimates are acceptable. Your estimates will be better than ours.

Include data for branches and all organizational units of your institution, such as medical schools and agricultural experiment stations. Data on research centers and facilities administered by your institution should be included. In addition, include hospitals or clinics owned, operated, or controlled by universities, and integrated operationally with the clinical programs of your medical schools. **Exclude** data for federally funded research and development centers (FFRDCs). Data for these facilities are collected separately.

If you have any questions please contact Margo Machen of NSF at (202) 634-4673.

Financial data are requested for your institution's 1990 fiscal year.

Please correct if name or address has changed

Please circle the month in which your institution's fiscal year begins:

1 JAN 2 3 4 5 6 7 8 9 10 11 12 DEC

It is estimated that response to this survey will require 19 hours. If you wish to comment on this burden, please contact Herman Fleming at (202) 357-9520.

How many person hours were required to complete this form?_____

Date Submitted_____

Scope:

This survey collects data on expenditures by universities and colleges for separately budgeted research and development (R&D) in science and engineering. Definitions used are compatible with OMB Circular A-21, revised July 23, 1982. Items 1 and 2 ask for *current fund expenditures* by source of funds and by field of science/engineering. Item 3 collects data on that *portion* of *current fund expenditures* reported in items 1 and 2 that went for the purchase of scientific and engineering research equipment.

Definitions:

1. ***Research and Development (R&D).*** R&D for purposes of this survey is the same as "organized research" as defined in Section B.1.b. of OMB Circular A-21 (revised). It includes all R&D activities of an institution that are *separately budgeted and accounted for.* R&D includes both "sponsored research" activities (sponsored by Federal and non-Federal agencies and organizations) and "university research" (separately budgeted under an internal application of institutional funds).

   a. *Research* is a systematic study directed toward fuller knowledge or understanding of the subject studied. Research is classified as either basic or applied, according to the objectives of the investigator.

   b. *Development* is systematic use of the knowledge or understanding gained from research, directed toward the production of useful materials, devices, systems, or methods, including design and development of prototypes and processes.

2. ***Current fund expenditures.*** Expenditures of funds available for current operations. Such expenditures include all unrestricted gifts and restricted current funds to the extent that such funds were expended for current operating purposes.

PLEASE TYPE OR PRINT NAME OF PERSON SUBMITTING THIS FORM	TITLE	AREA CODE	EXCH.	NO.	EXT.

NAME OF PERSON WHO PREPARED THIS SUBMISSION (if different from above)	TITLE	AREA CODE	EXCH.	NO.	EXT.

Instructions for Items 1 and 2

Separately budgeted research and development (R&D) includes all funds expended for activities specifically organized to produce research outcomes and commissioned by an agency either external to the institution or separately budgeted by an organizational unit within the institution. *Include* research equipment purchased under research project awards from "current fund" accounts. Also *include* research funds subcontracted to outside organizations. *Exclude* training grants, public service grants, demonstration projects, and departmental research expenditures that are not separately budgeted. Also, *exclude* any R&D expenditures in the fields of education, law, humanities, music, the arts, physical education, library science, and all other non-science fields. Allocate funding to the original sources whenever possible, as specified below. If this information is unknown, report the proximate funding source.

(1) *Total*

a. *Federal Government.* Report grants and contracts for R&D (including direct and reimbursed indirect costs) by all agencies of the Federal Government.

b. *State and local governments.* Include funds for R&D from State, county, municipal, or other local governments and their agencies. Include here State funds which support R&D at agricultural and other experiment stations.

c. *Industry.* Include all grants and contracts for R&D from profitmaking organizations, whether engaged in production, distribution, research, service, or other activities. Do not include grants and contracts from nonprofit foundations financed by industry; these should be reported under *All other sources* (line 1175).

d. *Institution funds.* Report funds, including indirect costs, which your institution spent for R&D activities from the following sources: (1) General-purpose State or local government appropriations (i.e., unrestricted funds); (2) general-purpose grants from industry, foundations, or other outside sources; (3) tuition and fees; (4) endowment income. In addition, estimate your institution's contribution to unreimbursed indirect costs incurred in association with R&D projects financed by outside organizations, and mandatory cost sharing on Federal and other grants. To estimate unreimbursed indirect costs, use your **actual** university **indirect cost rate** (rather than the proposed rate) multiplied by the base (e.g., direct salaries and wages, etc.) minus actual indirect cost recoveries. If your institution now separately budgets what was previously classified as departmental research, include these data in line 1161.

e. *All other sources.* Include grants for R&D from nonprofit foundations and voluntary health agencies as well as from all other sources not elsewhere classified. Funds from foundations which are affiliated with, or granted solely to your institution, should be included under line 1160, "Institution funds". Funds for R&D received from a health agency that is a unit of a State or local government should be reported under "State and local governments" (line 1125). Also include gifts from individuals that are restricted by the donor to research.

(2) *Basic research.* **Distinguish basic from nonbasic (i.e., applied) research, as defined in column (2) below.**

Instructions for Item 3

Please report that **portion** of current fund expenditures reported in items 1 and 2 that went for the purchase of research equipment. This includes all research equipment purchased under sponsored research project awards from current fund accounts.

From column (1) report current fund expenditures for R&D from all sources: Federal Government, State, county, municipal or other governments and their agencies (including State funds supporting R&D at agricultural experiment stations); industry; institution funds; and private foundations and voluntary health agencies, individuals, and associations.

For column (2) include funds from grants and contracts for R&D sponsored by agencies of the Federal Government.

ITEM 1. CURRENT FUND EXPENDITURES FOR SEPARATELY BUDGETED RESEARCH AND DEVELOPMENT IN THE SCIENCES AND ENGINEERING, BY SOURCE OF FUNDS: FY 1990 (Include indirect costs)

Source of funds		(1) Total	(2) Basic research
		(Dollars in thousands)	(Percent of column 1)
a. Federal Government	1110	$	_____ %
b. State and local governments	1125		**Basic research** is directed toward an increase of knowledge; it is research where the primary aim of the **investigator** is a fuller knowledge or understanding of the subject under study rather than a specific application thereof.
c. Industry	1150		
d. Institution funds	1160		
(1) Separately budgeted	1161		
(2) Underrecovery of indirect costs and cost sharing	1162		
e. All other sources	1175		
f. TOTAL (sum of a through e)	1100	$	_____ %

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Information received from individual institutions in lines 1161 and 1162, or estimates for basic research expenditures, will **not** be published or released; only aggregate totals will appear in tabulations.

Note: Total R&D expenditures reported in line 1100, column (1) and line 1400, column (1) should be the same.
Federally financed R&D expenditures reported in line 1110, column (1) and line 1400, column (2) should be the same.

ITEM 2. CURRENT FUND EXPENDITURES (TOTAL AND FEDERALLY FINANCED) FOR SEPARATELY BUDGETED RESEARCH AND DEVELOPMENT, BY FIELD OF SCIENCE/ENGINEERING: FY 1990
(Include indirect costs)*

Field of science/engineering		(Dollars in thousands) (1) Total	(2) Federal
a. ENGINEERING (TOTAL)	1410	$	$
(1) Aeronautical & astronautical	1411		
(2) Chemical	1412		
(3) Civil	1413		
(4) Electrical	1414		
(5) Mechanical	1415		
(6) Metallurgical & materials**	1417		
(7) Other	1416		
b. PHYSICAL SCIENCES (TOTAL)	1420		
(1) Astronomy	1421		
(2) Chemistry	1422		
(3) Physics	1423		
(4) Other	1424		
c. ENVIRONMENTAL SCIENCES (TOTAL)	1430		
(1) Atmospheric	1431		
(2) Earth sciences	1432		
(3) Oceanography	1433		
(4) Other	1434		
d. MATHEMATICAL SCIENCES (TOTAL)	1441		
e. COMPUTER SCIENCES (TOTAL)	1442		
f. LIFE SCIENCES (TOTAL)	1450		
(1) Agricultural	1451		
(2) Biological	1452		
(3) Medical	1453		
(4) Other	1454		
g. PSYCHOLOGY (TOTAL)	1460		
h. SOCIAL SCIENCES (TOTAL)	1470		
(1) Economics	1471		
(2) Political science	1472		
(3) Sociology	1473		
(4) Other	1474		
i. OTHER SCIENCES, not elsewhere classified (TOTAL)	1480		
j. TOTAL (sum of a through i)	1400	$	$

*PLEASE EXCLUDE from your response any R&D expenditures in the fields of education, law, humanities, music, the arts, physical education, library science, and all other non-science/engineering fields.

**In what field(s) have METALLURGICAL AND MATERIALS ENGINEERING data been previously reported?_____

ITEM 3. CURRENT FUND EXPENDITURES FOR RESEARCH EQUIPMENT (TOTAL AND FEDERALLY FINANCED) FOR SEPARATELY BUDGETED RESEARCH AND DEVELOPMENT, BY FIELD OF SCIENCE/ENGINEERING: FY 1990*

Field of science/engineering		(Dollars in thousands)	
		(1) Total	(2) Federal
a. ENGINEERING (TOTAL)	1810	$	$
(1) Aeronautical & astronautical	1811		
(2) Chemical	1812		
(3) Civil	1813		
(4) Electrical	1814		
(5) Mechanical	1815		
(6) Metallurgical & materials**	1817		
(7) Other	1816		
b. PHYSICAL SCIENCES (TOTAL)	1820		
(1) Astronomy	1821		
(2) Chemistry	1822		
(3) Physics	1823		
(4) Other	1824		
c. ENVIRONMENTAL SCIENCES (TOTAL)	1830		
(1) Atmospheric	1831		
(2) Earth sciences	1832		
(3) Oceanography	1833		
(4) Other	1834		
d. MATHEMATICAL SCIENCES (TOTAL)	1841		
e. COMPUTER SCIENCES (TOTAL)	1842		
f. LIFE SCIENCES (TOTAL)	1850		
(1) Agricultural	1851		
(2) Biological	1852		
(3) Medical	1853		
(4) Other	1854		
g. PSYCHOLOGY (TOTAL)	1860		
h. SOCIAL SCIENCES (TOTAL)	1870		
(1) Economics	1871		
(2) Political science	1872		
(3) Sociology	1873		
(4) Other	1874		
i. OTHER SCIENCES, not elsewhere classified (TOTAL)	1880		
j. TOTAL (sum of a through i)	1800	$	$

*Current fund expenditures in each field for scientific research equipment should be a **subset** of the "Total" and "Federal" column reported in item 2.

**In what field(s) have METALLURGICAL AND MATERIALS ENGINEERING data been previously reported?_____

CROSSWALK BETWEEN NSF FIELD OF SCIENCE/ENGINEERING CODES AND THE NATIONAL CENTER FOR EDUCATION STATISTICS (NCES) CLASSIFICATION OF INSTRUCTIONAL PROGRAMS

The left-hand column shows each of the detailed fields as displayed on the questionnaire form. The right-hand column shows the NCES fields which are included with the NSF category as well as some additional illustrative disciplines. These additional displines are intended to be guidelines—not sharp definitions—as to what should be reported under a particular field. Questionnaire fields where there are changes in last year's crosswalk are shown in *italics*.

Questionnaire Field	NCES Classification and Additional Illustrative Disciplines
a. ENGINEERING	
(1) Aeronautical & Astronautical	14.02 Aerospace (also aerodynamics, space technology)
(2) Chemical	03.0509 Wood Science; 14.07 Chemical Eng.; 14.25 Petroleum Eng. (also petroleum refining process, polymer)
(3) Civil	04.02 Architecture; 14.04 Architectural Eng.; 14.08 Civil Eng.; 14.14 Environmental Health Eng. (also hydraulic, hydrologic, sanitary and environmental, structural, transportation)
(4) Electrical	14.09 Computer Eng. (also power eng.); 14.10 Electrical, Electronics & Communications Eng.; 14.1002 Microelectronic Eng.
(5) Mechanical	14.11 Engineering Mechanics; 14.19 Mechanical Eng.
(6) *Metallurgical & Materials*	14.06 Ceramic Eng.; 14.15 Geological Eng.; 14.16 Geophysical Eng.; 14.18 Materials Eng.; 14.20 Metallurgical Eng.; 14.21 Mining & Mineral Eng.; 40.0701 Metallurgy; 14.28 Textile Eng. (also welding)
(7) Other	14.01 Engineering, General; 14.03 Agricultural Eng.; 14.05 Bioengineering & Biomedical Eng.; 14.12 Engineering Physics; 14.13 Engineering Science; 14.1401 Environmental Health Eng.; 14.17 Industrial Eng.; 14.22 Naval Architecture & Marine Eng.; 14.23 Nuclear Eng.; 14.24 Ocean Eng.; 14.27 Systems Eng.; 14.99 Engineering, Other; 30.03 Engineering & Other Disciplines; 30.06 Systems Science (also industrial and management, marine, ocean engineering systems)
b. PHYSICAL SCIENCES	
(1) Astronomy	40.02 Astronomy; 40.03 Astrophysics; 40.09 Planetary Science (also optical and radio, X-ray, Gamma-ray, neutrino)
(2) Chemistry	40.05 Chemistry (also inorganic, organo-metallic, organic, physical, analytical, pharmaceutical, polymer sciences, (except biochemistry))
(3) Physics	40.08 Physics (also acoustics, atomic and molecular, condensed matter, elementary particles, nuclear structure, optics, plasma)
(4) Other	40.01 Physical Sciences, General; 40.0799 Miscellaneous Physical Sciences, Other; 40.99 Physical Sciences,Other (used for multidisciplinary projects within physical sciences and for disciplines not requested separately)
c. ENVIRONMENTAL SCIENCES	
(1) Atmospheric	40.04 Atmospheric Science & Meteorology (also aeronomy, solar, weather modification, extraterrestrial atmospheres)
(2) Earth Sciences	14.26 Surveying & Mapping Sciences; 40.06 Geological Sciences; 40.0703 Earth Science (also engineering geophysics, general geology, geodesy and gravity, geomagnetism, hydrology, inorganic, isotopic, organic geochemistry, lab geophysics, paleomagnetism, paleontology, physical geography and cartography, seismology)
(3) Oceanography	26.0607 Marine Biology; 40.0702 Oceanography (also biological, chemical, geological, or physical oceanography)
(4) Other	(used for multidisciplinary projects within environmental sciences)
d. MATHEMATICAL SCIENCES	06.1302 Operations Research (Quantitative Methods); 27 Mathematics; 27.05 Statistics (also algebra, analysis, applied mathematics, foundations and logic, geometry, numerical analysis, topology)
e. COMPUTER SCIENCES	06.12 Management Information Systems; 11 Computer & Information Science, General; 30.09 Imaging Science (also design, development, and application of computer capabilities to data storage and manipulation, information science)

f. LIFE SCIENCES	
(1) Agricultural	01.03 Agricultural Production 02 Agricultural Sciences 03 Renewable Natural Resources 01.0303 Aquaculture 02.04 Plant Science 04.06 Landscape Architecture 01.07 International Agriculture 02.05 Soil Science (also agricultural chemistry, agronomy, animal science, conservation, fish and wildlife, forestry, horticulture)
(2) Biological	18.0201 Clinical Anatomy 18.0204 Clinical Pathology 18.1002 Allergies & Endomology 18.2202 Epidemiology 26.01 Biology, General 26.0302 Bacteriology 26.0601 Anatomy 26.0604 Embryology 26.0610 Parasitology 26.0701 Zoology 26.0703 Genetics, Human & Animal 26.0706 Physiology, Human & Animal 26.99 Life Sciences, Other 18.0202 Clinical Biochemistry 18.0205 Physiology 18.1009 Immunology 19.05 Food Science & Human Nutrition 26.02 Biochemistry & Biophysics 26.04 Cell & Molecular Biology 26.0602 Biometrics & Biostatistics 26.0606 Histology 26.0612 Toxicology 26.0702 Entomology 26.0704 Pathology, Human & Animal 26.0799 Zoology, Other 42.14 Psychopharmacology 18.0203 Clinical Microbiology 18.0206 Clinical Toxicology 18.1018 Pathology 20.0108 Food & Nutrition 26.03 Botany 26.05 Microbiology 26.0603 Ecology 26.0609 Nutritional Sciences 26.0699 Misc. Specialized Areas/ Life Science/Other 26.0705 Pharmacology, Human & Animal (also biogeography, physical anthropology)
(3) Medical	18.0299 Basic Clinical Health Sciences, Other 18.1004 Colon & Rectal Surgery 18.1006 Geriatrics 18.1012 Nuclear Medicine 18.1015 Orthodontic Surgery 18.1019 Pediatrics 18.1021 Plastic Surgery 18.1023 Psychiatry 18.1026 Surgery 18.1099 Medicine, Other 18.13 Osteopathic Medicine 18.22 Public Health 26.0605 Endocrinology 26.0611 Radiobiology 18.04 Dentistry 18.1001 Medicine, General 18.1005 Dermatology 18.1010 Internal Medicine 18.1013 Obstetrics & Gynecology 18.1016 Orthopedic Surgery 18.1020 Physical Medicine & Rehabilitation 18.1024 Neurology 18.1027 Thoracic Surgery 18.1106 Psychiatry/Mental Health 18.14 Pharmacy 18.24 Veterinary Medicine* 26.0608 Neurosciences 18.08 Hematology 18.1003 Anesthesiology 18.1007 Family Practice 18.1011 Neurological Surgery 18.1014 Ophthalmology 18.1017 Otorhinolaryngology/ Otolaryngology 18.1022 Preventive Medicine 18.1025 Radiology 18.1028 Urology 18.12 Optometry 18.15 Podiatry 20.0102 Child Development Care & Guidance (also cardiology, gastroenterology, preventive medicine and community health, pharmacy, oncology)
(4) Other	17.0807 Occupational Therapy 17.99 Allied Health, Other 18.07 Health Sciences Administration 18.99 Health Sciences, Other 17.0813 Physical Therapy 18.01 Audiology & Speech Pathology 18.09 Medical Laboratory 17.0899 Rehabilitation Services, Other 18.11 Nursing (used for multidisciplinary projects within life sciences)
g. PSYCHOLOGY	13.08 School Psychology 17.0801 Art Therapy 42 Psychology (also animal behavior, clinical, educational, experimental, human development and personality, social)
h. SOCIAL SCIENCES	
(1) Economics	01.0103 Agricultural Economics 06.05 Business Economics 45.06 Economics (also econometrics, international, industrial, labor, public finance and fiscal policy)
(2) Political Science	44.01 Public Affairs, General 44.99 Public Affairs, Other 45.10 Political Science & Government 44.03 International Public Service 44.05 Public Policy Studies 44.04 Public Administration 45.09 International Relations (also regional studies, comparative government, legal systems, political theory)
(3) Sociology	45.02 Anthropology (Social & Cultural only) 45.05 Demography 45.11 Sociology (also comparative and historical, complex organizations, cultural and social structure, group interactions, social problems and welfare theory)
(4) Other	04.03 City, Community & Regional Planning 45.01 Social Sciences, General 45.12 Urban Studies 05 Area & Ethnic Studies 43.01 Criminal Justice 45.03 Archaeology 45.99 Social Sciences, Other 42.12 Psycholinguistics 44.02 Community Services 45.07 Geography (also history of science, linguistics, socioeconomic geography)
i. OTHER SCIENCES, n.e.c.	(used when the multidisciplinary and interdisciplinary aspects make the classification under one primary field impossible)

* Institutions with schools of veterinary medicine should distribute R&D expenditures among the appropriate disciplines (agricultural, biological, and medical) rather than only in medical sciences.

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